ACTA MUSEI VARNAENSIS VI

ВАРНЕНСКИЯТ ХАЛКОЛИТЕН НЕКРОПОЛ И ПРОБЛЕМИТЕ НА ПРАИСТОРИЯТА НА ЮГОИЗТОЧНА ЕВРОПА

STUDIA IN MEMORIAM IVANI IVANOV

THE VARNA ENEOLITHIC NECROPOLIS AND PROBLEMS OF PREHISTORY IN SOUTHEAST EUROPE

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Съставител
н.с. д-р Владимир Славчев

Научен и технически редактор
н.с. д-р Владимир Славчев

Превод на и от чужди езици
авторите
н.с. д-р Владимир Славчев (руски език)
д-р Бисерка Гайдарска (английски език)
Аделина Чернаева (английски език)
Олга Краснова (английски език)
Богдан Атанасов (немски език)

На корицата: *Глинена паница със златна украса от гроб 4, Варненски халколитен некропол*
Фотография: *Емил Спасов*

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Иван Симеонов Иванов
1944–2001

На 14 май 2004 г. във Варненския археологически музей се проведе кръгла маса на тема "Варненският халколитен некропол и проблемите на праисторията на Югоизточна Европа". Това събиране бе посветено на паметта на Иван Иванов и на него бе поканен тесен кръг европейски праисторици, познавали и работили с покойния ни колега. В настоящия сборник искахме да съберем материалите, които всеки от участниците представи на обсъждането. За съжаление, по технически причини отпечатването на тома доста се забави. Някои от авторите предпочетоха да публикуват статиите си в други издания, на втори се наложи да преработват основно съобщенията си поради нови резултати и проучвания. Разбрали за инициативата, други колеги също изпратиха свои материали. Затова и в книгата фигурират автори и теми, които не бяха представени на кръглата маса, а някои интересни изследвания, които бяха изнесени през 2004 г., липсват.

Този сборник е един скромен израз на уважението към напусналия ни твърде преждевременно човек и учен Иван Иванов. В своите изследвания той засяга редица интересни и важни моменти от балканската и европейска праистория и стремежът ни бе да се придържаме към разработваната от него проблематика. Макар и *post mortem*, почитта трябва да бъде изказвана, затова се надяваме, че прелиствайки тези страници, читателят ще си спомни за нашия приятел, който остави трайна следа в археологическата наука и музейното дело. Това беше наше приятно задължение, макар че през цялото време чувствахме спотаена мъка, че Иван не е с нас.

On May 14, 2004 in the Varna Museum of Archaeology, the Round Table on the theme of "The Varna Eneolithic necropolis and problems of prehistory in Southeast Europe" took place. Since this session was devoted to the memory of Ivan Ivanov, a close circle of the European prehistorians who knew and worked with him were invited to participate. In this book, our wish was to collect the materials submitted by the participants to the Round Table. Unfortunately, for technical reasons, the publishing of the book has become delayed. Some authors have preferred to publish their articles in other volumes; others had to make radical changes to their texts because of the results of new research and excavations. Yet a third group consisted of colleagues wishing to submit a chapter once they had found out about the initiative. These are the reasons for the discrepancies between list of presentations at the meeting and the contents of the current volume.

This book is our modest expression of respect for the person and the scientist Ivan Ivanov, who died at a regrettably early age. He studied a number of interesting and important aspects of prehistory in the Balkans and Southeast Europe, leading us to a natural agenda of problems which interested him. We hope that, by looking through these pages, the reader will remember with reverence our friend who left such an important contribution to archaeological science and museum studies. It was our pleasant duty, albeit inextricably mixed with feelings of regret for Ivan's passing.

ИВАН СИМЕОНОВ ИВАНОВ
(1944–2001)

Трудно е да се пише в минало време за човек, с когото си бил заедно повече от тридесет години, делил си работата и хляба, радостта от откритията и живота. Още по-трудно е да се пише за човек като Иван Иванов – голям и като ръст, и като присъствие, независимо дали става дума за пряката археологическа, или за обществената му дейност.

Може би малцина извън приятелите и колегите му знаят, че той не е роден във Варна, а в тетевенското село Голям извор, което много обичаше и при всяка възможност посещаваше. Това не му пречеше да обича и милее за Варна и нейната култура, да бъде повече варненец и да направи повече за нашия град, отколкото редица издигнали се на високи постове в йерархията на града и на страната по различно време потомствени варненци.

Роден на 1 август 1944 г., Иван Иванов получава основно образование в родното си село, а гимназиално – в гр. Ябланица. През 1965–1969 г. учи история във Великотърновския университет "Св. Св. Кирил и Методий". По време на следването си участва в подводни проучвания, организирани от Варненския археологически музей под ръководството на Г. Тончева и в разкопките на праисторическата селищна могила при с. Голямо Делчево, Варненско под ръководството на Х. Тодорова от Археологическия институт към БАН.

Наскоро след дипломирането си, на 5 юли 1969 г. е назначен в отдел Археология (известен по традиция като Археологически музей) на тогавашния Окръжен исторически музей – Варна. Отначало работи като екскурзовод, а след това става и първия уредник-праисторик в него. От 1974 г. е научен сътрудник. През 1995 г. е определен за завеждащ на Археологическия музей към тогавашната Дирекция "Културно-историческо наследство" – Варна, а от 1 февруари 2001 г. след конкурс е назначен за директор на нейния наследник – Регионалния исторически музей – Варна. На този пост наскоро след това го изненада смъртта.

Веднага след постъпването си в Археологическия музей, през лятото на 1969 г. И. Иванов се включва активно в мащабните разкопки в Девненската низина под ръководството на колегата си Д. И. Димитров. Там му е поверено проучването на запазената част от селище от каменно-медната и бронзовата епохи и принадлежащия му малък некропол от бронзовата епоха, с което той се справя отлично. Участва и в разкопките на средновековния български некропол № 3 (VIII–IX в.) край Девня. На следващата година той събира много праисторическа керамика и други археологически материали при прокопаването с дълбачки на новия канал между Варненското езеро и морето, както и от потъналото халколитно селище при с. Страшимирово, Варненско. През 1970 г. участва също в разкопките, организирани от Варненския археологически музей на селища от елинистическата и рим-

ската епоха под днешната гара Повеляново (Девня), ръководени от З. Гочева и М. Мирчев, както и за кратко под ръководството на А. Кузев на базиликата на ул. "Хан Крум" във Варна.

През 1971 г. прави първите си самостоятелни разкопки – спасителни подводни проучвания – на потънало праисторическо селище в м. Балтата край гр. Девня, по трасето на днешната ж. п. линия Варна–Девня. Там с помощта на малка дълбачка пресича и проследява отчасти очертанията на неизвестно дотогава селище от ранната бронзовата епоха (IV–III хил. пр.Хр.). Същевременно събира от него и описва многобрйните находки – предимно керамика, кремъчни и костени сечива, както и много важен животински костен материал, част от който по-късно публикува съвместно с археозоолози. Той прави и важни наблюдения върху стратиграфията и топографията на селището, използвани отчасти в негови по-късни публикации, но за съжаление обектът остана непубликуван като цяло.

През 1972 г. И. Иванов се включва заедно с други колеги от музея в екипа за спасителни разкопки на средновековен български некропол (IX–X в.) в кв. Трошево – Варна, където работи в продължение на много месеци.

Есента на същата година е повратен момент в неговата научна кариера. Случайното откриване при изкопни работи на първия гроб от прочутия по-късно Варненски халколитен некропол в индустриалната зона на града, свързва проучването на този обект с името на И. Иванов до края на живота му. Значението на случайно откритите и по-късно постъпили във Варненския музей златни накити, медни и кремъчни сечива е оценено веднага от музейните специалисти. Още през декември 1972 г. той започва на мястото на откриването първите спасителни разкопки, отначало под номиналното ръководство на М. Лазаров (това се налага поради съпротивата на по-изявени негови колеги-праисторици от Археологическия институт – София), а след няколко години вече се утвърждава и като самостоятелен ръководител на обекта. Разкопките продължават почти без прекъсване през 1972–1978 г., след това през 1980–1986 г. и за последно през 1991 г.

През това време, често при много трудни условия (първоначално прави разкопки целогодишно, без прекъсване), той проучва по-голямата част от некропола (общо досега от него са разкопани 294 гроба) с подробни описания и скици. В гробовете са документирани хиляди златни, медни, глинени, кремъчни, каменни и други предмети, голяма част от които и досега остават уникални за епохата си. Тези проучвания са организирани и проведени с висок професионализъм, изработва се твърде прецизна (дори и за днешните условия) писмена, графична и фото документация. Същевременно И. Иванов привлича за участие известни български специалисти и от сродни други науки – геолози, антрополози, зоолози, ботаници и др., които добавят много важна информация за некропола и погребаните в него. Проучванията се осъществяват с голям екип и основният им двигател и изпълнител е именно И. Иванов. През годините при него стажуват и се учат редица

студенти и млади специалисти, мнозина от тях днес вече известни български археолози.

Тези разкопки спокойно могат да се нарекат епохални за най-древната история на човечеството като цяло. Откриването на Варненския халколитен некропол с неговите многобройни и разнообразни находки променят коренно представите на световната археологическа и историческа наука за праисторическото общество и по-специално за халколитната епоха на Балканите и Европа. Проучванията доказват със сигурност, че за разлика от съществуващото дотогава в българската и източноевропейска наука мнение, през халколита (V хил. пр.Хр. за Балканския полуостров) между хората е имало ясно изразена социална диференциация. Също за пръв път се установява, че в обществото през каменно-медната епоха на върха на обществената пирамида е имало една малка, очевидно ръководна група, съставена от много богати вождове-жреци и техните приближени, следвала втора – поголяма група от хора, която можем да наречем със съвременния термин "средна класа", в която може би влизали и занаятчиите, а третата група са били мнозинството от обикновени, бедни членове на съответното племе. Тези изводи и други разнообразни и важни сведения за каменно-медната епоха, добити при проучването на некропола, са обнародвани в десетки научни и научно-популярни статии на И. Иванов и стигат до широката публика чрез телевизионни и научно-популярни филми и предавания с негово участие. Неговите открития от некропола са публикувани, пресъздадени на лента и излъчени през годините не само в България, но и в редица други страни от Европа, в Япония, в Израел и др.

Резултатите от разкопките на некропола бързо стават известни на научния свят у нас от неговите публикации и предизвикват вниманието на редица големи учени в чужбина. Поради този интерес и с решаващите усилия на И. Иванов и М. Лазаров през април 1976 г. музеят организира във Варна специален международен симпозиум на тема "Варненският некропол и проблемите на халколита". За участие в него са поканени и вземат участие тридесет български и чуждестранни праисторици от Германия, Англия, Русия, САЩ, Чехия, Румъния и Югославия. Между тях могат да се посочат имената на световно известни учени като проф. Дж. Мелаарт и Дж. Нандрис от Англия, проф. А. Хартман и М. Корфман (бъдещия ръководител на разкопките в Троя) от Германия, проф. М. Гарашанин и Б. Йованович от Югославия, проф. Е. Комша от Румъния, д-р Е. Черних от Русия и др. Докладът на И. Иванов за проучването на некропола през 1972–1976 г. е основен и предизвиква сензация сред колегите му. Той поражда много задълбочени дискусии и тълкувания. Във връзка със симпозиума най-значимите находки от проучените дотогава гробове са експонирани за пръв път в специално построената музейна изложбена зала край Аладжа манастир, където остават до преместването в днешната сграда на сегашния Археологически музей във Варна през 1983 г. и се посещават от десетки хиляди българи и чужденци. Поради важността

на това забележително научно събитие, през 1978 г. докладите от симпозиума се издават от Българската академия на науките на съответните чужди езици в първия сборник от новосъздадената за целта поредица "Studia Praehistorica", с който информацията за изключителните открития във Варненския халколитен некропол по пътя на книгообмена тръгна по света.

Проучванията на Иван Иванов стават база за изследване и на редица чуждестранни учени-изследователи на праисторията от Европа и Америка. Статии за некропола пишат известни праисторици – като проф. М. Гимбутас в американското списание "Archaeology", проф. К. Ренфрю в английското "Antiquity" и др. Техните имена определят и утвърждават за пръв път в световната археология откритията във Варна като най-старото злато в света, изработено от човешка ръка и името на България се прочува в света на науката.

Това е причината и част от материалите, открити при разкопките (предимно от четири гроба – 1, 4, 36 и 43), да гостуват често от 1974 г. и до днес на редица музеи по всички континенти. Първоначално те участват като част от националната изложба "Тракийска култура и изкуство", чийто успех разнася славата на Варненския некропол по света. Оттогава няма изложба в чужбина, представяща културно-историческото наследство на България, в която в по-малка или по-голяма степен да не е представен Варненския халколитен некропол.

През 1976 г. И. Иванов прави друго важно археологическо откритие. При строежа на тогавашния нов Домостроителен комбинат край Варна, той разкопава няколко раннохалколитни гроба, принадлежащи вероятно на малък некропол. Там, наред с великолепни керамични съдове, каменни сечива и накити от различен материал, той открива и най-древните златни предмети в света. Това са няколко златни мъниста от малка огърлица, които се датират в средата на V хил. пр.Хр. Този некропол става известен в науката като Варна II (Варна I е наречен по-големия и по-късен, тъй като е открит преди него).

Значим е приносът на И. Иванов и за развитието на подводната археология в България. Наред с разкопките и публикациите за Варненския некропол, през активните си години на проучване той не забравя и първата си любов – потъналите праисторически селища във Варненските езера. При няколкомесечната си специализация във Франция през 1979 г. участва в разкопките на пещерата Лазарет край Ница и в подводните проучвания на потънали праисторически селища в езерото Паладрю. Използува активно наученото там за съвременната техника и технология на подводни разкопки и през периода 1980–1982 и 1984–1986 г. проучва запазена част от потъналото халколитно селище в района на Арсенала край южния бряг на Варненското езеро. Това са най-сериозните и професионално проведени разкопки на селище под водата по това време у нас и дават възможност за важни изводи, свързани с историята на този особен тип археологически обекти, които, уви, също останаха непубликувани като цяло.

Не остава настрана от вниманието му и праисторията на Варненския регион. През 1983 и 1988 г. той разкопава отчасти и останките на раннохалколитно селище от V хил. пр.Хр. край с. Суворово, Варненско. Проучванията и откритите там материали доказват ясно тясната връзка по това време на населението на вътрешността на района и неговата праисторическа култура с тази на обитателите на селищата покрай бреговете на Варненското езеро.

След 1991 г. разкопките на Варненския некропол са преустановени – поради липса на средства и отчасти заради идеята му да се направи на самото място малка музейна експозиция с разчистени гробове, текстове и илюстрации. Оттогава усилията на И. Иванов се насочват към съвместно проучване с френски учени на кремъчната индустрия през халколита (V хил. пр.Хр.) и на суровинните ù източници във вътрешността на Североизточна България. За тази цел през 1994–1995 г. той прави редица теренни обхождания в Разградска и Русенска области и проучва чрез сондажи останки от работилници за праисторически кремъчни сечива при с. Равно (1997 г.) и на селищната могила при с. Каменово (1999 г.).

Научната продукция на Ив. Иванов надхвърля 50 заглавия: книги, студии, статии и каталози, някои писани в съавторство с български и чуждестранни колеги. Голяма част от тях са публикувани в реномирани чужди издания във Франция, Германия, Англия, Русия, Испания, Румъния, Италия и др. Основната част, естествено, е свързани с неговите проучвания на некропола и на селищата във Варненските езера, но има и статии, посветени на екологията през халколита и бронзовата епоха, на праисторическото животновъдство, на разпространението на златото, на търговията през халколита и др. (виж приложената библиография).

През последните си творчески години той работеше отново и то много усилено върху темата на живота си – цялостната публикация на Варненския халколитен некропол – идея, която за съжаление остана недовършена. Ние, колегите му, довършихме и издадохме посмъртно последното му дело – брошура-пътеводител за праисторията на Варненския край, а В. Славчев дописа и публикува в съавторство недовършената до край голяма статия на тази тема. Това е първата обобщена картина по този въпрос за региона и в нея е представена голяма част от резултатите и изводите на неговите многогодишни наблюдения, проучвания и обхождания на праисторически обекти във Варненско.

Огромен е броят на научно-популярните му статии – над 150, по различни проблеми на праисторията във Варненско и България, за новости в археологията. Те са публикувани в централния и местния печат, както и в други научно-популярни издания в страната и чужбина. След 1990 г. той написа в местната преса и доста публицистични статии. И. Иванов е също автор или консултант на немалко документални и научно-популярни телевизионни и кинофилми, свързани със специалността му, на радиопредавания, на научно-популярни брошури, на детска рисувана книжка за некропола и др.

През годините И. Иванов участва и в над петнадесет международни конференции и конгреси у нас и в чужбина. Освен българските, по-важните между тях са: в Румъния – през 1974, 1976, 1994 и 1996 г., Австрия – 1981 г., Англия – 1981 г., Грузия – 1983 г., Германия – 1988 г., Франция – 1989 г., Испания – 1995 г. В докладите си той разглежда редица проблеми от праисторията на България и Балканите – различни аспекти, свързани с Варненския халколитен некропол и погребаните в него; с потъналите праисторически селища във Варненските езера и съдбата на населението им през халколита и през раннобронзовата епоха; за търговските връзки през тези епохи; производството и търговията с метал и метални произведения; за производството на кремъчни и на медни сечива; социалния и икономическия живот на хората по това време и др. Те са оценени и публикувани в актите на съответните научни срещи.

И. Иванов направи много и за развитието на музейното дело във Варна и Варненско, както и за представянето на българските музейни богатства в страната и по света. Негово дело са експозиционните планове, илюстративния материал и подреждането на праисторическия раздел на експозицията във Варненския археологически музей, осъществени през 1969, 1982–1983 и 1996 г, при което всяко следващо представяне е обогатявано с нови експонати, като начин на оформяне и информация. По негова идея и план (и изключително с материали от неговите разкопки) бе създадена и подредена археологическата част в новосъздадения не без неговата настоятелност и активна позиция музей в гр. Суворово. Той е автор на тематико-експозиционния план за праисторическата част, показана в новата експозиция на музея в гр. Дългопол през 1984 г.; участва и в оформлението на предишната експозиция на Градския музей в Провадия.

По тематични планове на И. Иванов или с неговото дейно участие са организирани изложбите с предмети от некропола или само от тях и в чужбина – в Япония (1982), Германия (1986 и 1988), Франция (1989), Израел (1994), Италия (1997) и САЩ (1998), като на някои от тях той бе определен за комисар. Каталозите или брошурите, издадени в тази връзка в съответните страни до голяма степен са негово дело. През 1993–1996 г. И. Иванов бе главният инициатор и осъществи над десет изложби с материали от Варненския халколитен некропол в различни музеи из страната – в Стара Загора, Силистра, Казанлък, Разград и др. Той беше един от авторите на тематичните планове за националното участие на България в световните изложения в Севиля през 1992 г. и в Лисабон през 1998 г., където бе и комисар. Праисторическите раздели от българските експозиции, представени там, са осъществени в резултат предимно на негови идеи и виждания.

Като ръководител на Варненския археологически музей през 1995–2000 г., той бе инициатор за компютъризацията на дейностите в него, за създаването на първата в страната музейна страница в Интернет. Заедно с други колеги от музея и от чужбина спечели няколко международни проекта, в резултат на което бе осъв-

ременена експозицията и издаден модерен пътеводител на музея. Преди неочакваната си смърт той заедно с колеги от Франция и Гърция работеше задълбочено по международен проект за създаването на мултимедиен диск, представящ халколита на Балканите.

И. Иванов бе общественик и културен деец с широки интереси и голяма инициативност и много популярен както в града, така и в българските археологически среди. Членуваше или бе сред основателите на различни обществени организации, фондации и дружества с идеална цел, свързани с културния живот на Варна. От възстановяването на Алианс франсез тук до смъртта си бе негов неизменен председател и осъществяваше широка популяризаторска дейност на френската култура в града. В различни периоди след 1989 г., с присъщия си демократизъм се включваше активно и в политическия живот на града като участник в различни клубове и движения. Участваше също активно в различни акции за опазване на културно-историческото наследство във Варна и региона. Навсякъде работеше безкористно и с постоянен плам. Занимаваше се и с публицистика, като през 2001 г. приятелите му издадоха посмъртно книгата "Злато от рая" с подбрани негови статии и размисли по актуални теми, писани във варненския печат през предишните десет години.

Колегите му от Варна и страната, както и всички, които са имали досег с него, ще запомнят голямата му ерудиция в областта на праисторията, неговата огромна работоспособност и общителност. Той бе известен със своята голяма инициативност и вечно желание за работа, с веселия си нрав и силно чувство за хумор, с неизменната си отзивчивост. Всички помнят неговата услужливост и готовност да помогне на всекиго, независимо от многото си лични и професионални ангажименти.

След него в музея остана празнина, която трудно ще се запълни, а и в града вече няма да е същото… С преждевременната смърт на Иван Иванов българската археологическа наука и музейно дело загубиха човек, който даде много и можеше да даде доста повече за тяхното развитие и модернизиране. Неговото име ще остане завинаги свързано с Варна и Варненския археологически музей, с откритото във Варненския халколитен некропол най-старо злато в света, с проучването и популяризирането на този световен по значение археологически обект, който влезе вече във всички големи енциклопедии.

Александър Минчев

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BLACK SEA LEVELS FLUCTUATIONS, CLIMATE CHANGE AND THE NEOLITHISATION OF THE NORTH PONTIC AREA AND THE BALKANS

VALENTIN DERGACEV (CHIŞINĂU), PAVEL DOLUKHANOV (NOTTINGHAM)

Introduction

The transition from the Mesolithic to the Neolithic, or, from hunter-gathering subsistence to agriculture, was the most important episode in Europe's prehistory that largely determined its way into civilization.

The mechanism of spread of the Neolithic in Europe includes two basic models, that of migration and cultural diffusion. A model of the neolithisation as a result of direct migrations is omnipresent in the works of G. Childe[1]. According to him[2], the Europe's Neolithic was created by "farmers spreading from the southern cradle of cereals". More recently, this idea took the form of the demic expansion or "wave of advance"[3]. This model was further substantiated by the genetic markers[4], which have been interpreted as an indication of the diffusion of farming population from Anatolia into Europe. C. Renfrew[5] linked up the dispersal of farming with the proliferation of the Indo-European speech.

According to the migrationist concept, the populations stemming from Anatolia moved into the western and northern areas of the Aegean littoral (Sesklo, Nea Nikomedeia and al.), settled the Thrace and spread further north into the Middle Danubia and Central Transylvania, bringing in domesticated the first plants and domestic animals, as well as agricultural skills[6].

There are several varieties of the migrationist concepts. These range from a direct colonization of hitherto unpopulated areas or the annihilation of the previous Mesolithic groups[7] to the model of élite dominance[8]. J. Zilhão views the neolithisation as "leapfrogging colonization" by small sea-faring groups along the Mediterranean coast[9]. An alternative approach views the neolithisation as an adoption of agriculture by indigenous hunter-gatherers through the diffusion of cultural and economic novelties by means of intermarriages, assimilation and borrowing[10].

A unifying position advocated by M. Zvelebil[11] distinguishes three phases in the transition to agriculture: availability, substitution and colonization, each one operating in a broader context of an "agricultural frontier"[12]. The "individual frontier mobility" concept relates the neolithisation to "small-scale" contacts between hunter-gatherers and farmers at the level of individuals and small groups linked by kinship. Several

writers[13] argue that the neolithisation involved small groups of immigrant farmers who came into contact with "local forager-herder/horticulturalists".

The advent of radiocarbon dating has provided a new instrument for testing the various models of neolithisation. The first series of radiocarbon measurements seemed to confirm the G. Childe's concept of *Ex Oriente lux*, indicating that the "Neolithic way of life penetrated Europe from the south-east spreading from Greece and the south Balkans…"[14]. Later publications based on comprehensive radiocarbon data for Neolithic sites suggested a more balanced view. R. Tringham discussed the spread of new techniques, and their adoption (or rejection) by the local groups, resulting from an expansion of population[15].

A recent analysis of a large dataset of Neolithic radiocarbon measurements[16] has basically confirmed the earlier results[17], showing a correlation of the earliest occurrence of the Neolithic with the distance from an assumed source in the Near East.

The neolithisation of South-East Europe proceeded against the background of substantial environmental changes, which included the changes in climate, vegetation and soils. No less important changes which especially affected the Pontic area, were related to the fluctuations of the Black Sea-level and related phenomena in the littoral zone. The aim of the present article consists in the assessment of the impact that these changes on the neolithisation of South-East Europe and the Balkans.

Methods

It should be remarked that the establishment of a direct casual relation between environmental changes and the social processes that occurred in the process of neolithisation is a very complicated task, particularly so for the Southern areas of the Eastern Europe. Its largely stems from an insufficient amount of factual evidence based on the multi-disciplinary research. There are very few examples when such investigations were carried out[18].

The second reason is extremely objective and is connected with the fact that the neolithisation of the South of the Eastern Europe proceeded mainly in the forest-steppe zone, where natural conditions were more favorable for the complex development of farming and livestock breeding. In contrast, the Azov-Black Sea zone steppe, where this process was originally aimed at the predominant development of livestock economy, became intensively inhabited much later, only from the beginning of the Chalcolithic. Due to these circumstances, the Neo-Chalcolithic sites are extremely rare in the North Black Sea–Azov coastal area, with a rare occurrence of multi-level stratified sites with long sequences of archaeological deposits.

Taken into consideration the above said, the present writers tried have chosen the following methods for tackling the above-formulated problem:

1. The assessment of existing evidence pertinent to environmental changes and the fluctuations of Black Sea level;

2. Comparative analysis of the data on the main multi-level, clearly stratified Mesolithic–Neolithic sites, their geomorphic setting and their subsistence base;

3. Analysis of spatial distribution of Mesolithic sites and Neo-Chalcolithic cultural entities in the Northwestern and the Northern Black Sea–Azov Sea coastal area.

4. Assessment of possible relationships between archaeologically established cultural changes and independently established environmental changes.

The Environment:

Climate–Vegetation–Soils. According to the pollen data, at the beginning of the Holocene, c. 10500 BC, summer temperatures in Europe rose by at least 6ºC[19]. According to the pollen data for the North Pontic area[20], during the Preboreal and Boreal periods of the Holocene (10000–7000 BC), the dry steppe with *Carex-Gramineae* and *Artemisia-Gramineae* domineered the vegetation cover of the Pontic Lowland. Rare forests started spreading along the river valleys from ca. 7000 years BC onwards. Initially they consisted of pine and birch, and later included the broad-leaved species: oak, elm, and the understory of hazel-nut; they were restricted to the bottomland and terraced slopes. The steppe vegetation on the watersheds gradually acquired a mesophytic character. Precipitation in the entire Mediterranean area markedly increased 8000–7000 years ago[21]. In the Pontic area this period coincided with the maximum spread of mixed coniferous-deciduous forests in the uphill and the valley bottomland. The silvo-steppe with isolated stands of oak, elm, lime and maples extended over the watershed plain[22].

The Black Sea. According to the "classical" scenario[23], the intensive melting of glaciers between 12000 and 9000 BC, led to the rapid rise of the sea-level (the "Neoeuxine transgression"). In its course, the Black Sea attained the level –20 m, i.e. rose above the sill of Bosporus, and the freshwater from the Black Sea started flowing south, through the Bosporus into the Marmara Sea, and further into the Aegean Sea. The glacio-eustatic rise of the level of the Mediteranean Sea reached the Aegean and Marmora Sea at 6000–5800 BC. This slowed the freshwater discharge from the Black Sea, and enhanced the penetration of saltwater, thus establishing the present two-flow regime in the Straits. As a result, the marine mollusks colonized the Black Sea shelves. The ensuing glacio-eustatic New Black Sea transgression resulted in a gradual rise of the sea-level, which reached its maximum of 2–2,5 m at 3800–3600 BC. At this stage, the sea water transgressed into the river valleys and formed the estuaries which eventually developed into the present-day *limans*.

An alternative scenario was suggested by W. Ryan *et al*.[24] According to this scenario, following the post-glacial rise, the Mediteranean Sea catastrophically breached the Strait of Bosporus at ca. 6100 BC and instantly refilled the Black Sea basin, flooding the shelf. This allegedly led to drastic changes in the environment; and stimulated the transition to farming in Europe. Current geologic investigations carried out in the Marmara Sea and on the southwestern Black Sea, proved the robustness of the "classical" scenario[25].

They provided additional evidence proving that in the early Holocene the Black Sea first breached the Bosporus, and overflowed into the Marmara and Aegean Sea.

According to the multi-disciplinary data obtained over the past decades by I. Balabanov and Y. Izmailov[26] and based on multiple radiocarbon-dated cores and seismic profiles, it became apparent that the Holocene changes of the Black Sea level had a fluctuating character. At the beginning of the Holocene, 10000–10500 years ago the sea-level was 40–50 m below the present one. The following Neo Euxine transgression led to the sea-level rise to 25 m by 9350–9200 cal. BC. The end of the Neo Euxine stage was marked by a considerable regression at 8650–8300 cal. BC, from – 41,1 to – 42,9 m. Three transgression phases are identifiable between 8550–6640 cal. BC. The maximum rise of the sea-level at this stage is linked to the breakthrough of Mediterranean water into the Black Sea basin, signalled by the appearance of eurigaline (saline) Mediterranean fauna. The transgressive Late Bugazian phase, which maximum is estimated as 7330–7050 cal. BC, corresponded to the sea-level rise up to –16÷17 m. During the Vityazian stage, 7050–5400 cal. BC. the sea-level rose to –9÷10 m.A regression that occurred 6,9–7,1 ka BP (6000–5600 cal. BC), in which course the sea-level fall to –20 m, marked the end of the Vityazian stage. Jemetian stage (5000–3000 cal. BC) consisted of three phases of transgression occurred at 4600, 4200 and 3800 cal. BC. The next sub-stage culminated at 3000 cal. BC with the maximum sea-level rise. These data which are deemed as the most reliable are used further in this text.

Stratified Mesolithic–Neolithic Sites

In view of the scarcity of multi-level sites and their often insufficient documentary records only few cites are cited below. Yet the key sites which include the deposits of the Late Mesolithic and the Middle Neolithic and are sufficiently provided with the radiocarbon dates.

Soroki I, Soroki II (the town of Soroca, Moldova). Two multi-level sites of the Early Neolithic Bug-Dniestgrian Culture are located at a distance of 600 m from each other, South from the town of Soroca (fig. 1: 28). They lie on a narrow, low, floodplain of the river Dniester (6–8 meters above the river, 65–70 m above the sea-level), at the bottom of the steep slope of the upper terrace. These sites were excavated by V. Markevič in the late 1950s–early 1960s[27].

Each of the two sites includes three clear-cut archaeological levels. The lower level (2) of the Soroki I site and two lower levels (3 and 2) of the Soroki II site are characterized by the absence of pottery, but they contain the remains of domestic animals (*Bos taurus* L., *Sus scrofa domestica* L., *Canis familiaris* L.), with the clear dominance of wild species. Two upper levels (1a and 1b) of the Soroki I site and the upper level (1) of the Soroki II site include the pottery, while containing the remains of same animals. On this basis, these sites are viewed as reflecting the transition from the Mesolithic to the Neo-

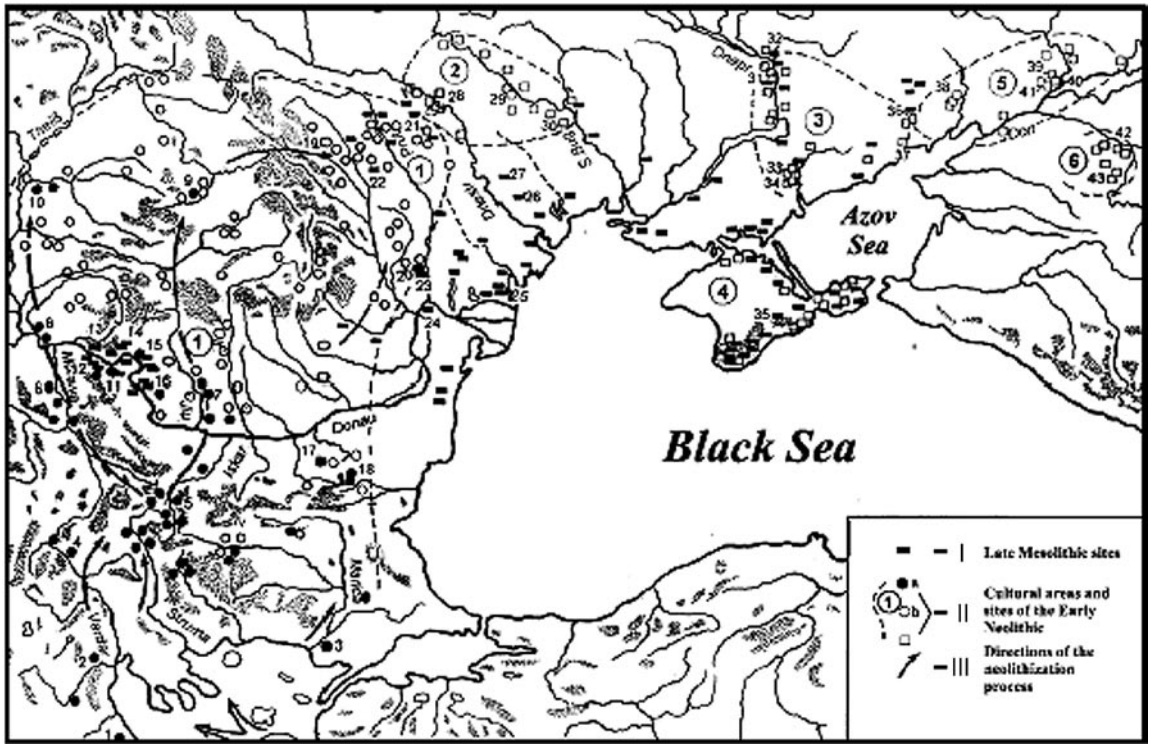
Black Sea
Azov Sea
Late Mesolithic sites
Cultural areas and sites of the Early Neolithic
Directions of the neolithization process

Fig 1. Mesolithic – Early Neolithic cultures and key sites in the Balkan-Danubia and North Pontic Area.
I -– Late Mesolithic sites; II – cultural areas and sites of the Early Neolithic; III - directions of the neolithization process.
Cultures: 1 – Starčevo-Criş (a – early, b – late sites): 2 – Bug-Dnestrian; 3 – Surian; 4 – Crimean; 5 – Rakyshechny-Yarian; 6 – Kremenian.
Sites: 1 – Sesklo, 2 – Nea Nikomedeia, 3 – Hoca Çeşme, 4 – Anzabegovo, 5 – Kremikovtsy, 6 – Divostin, 7 – Cârcea, 8 – Starčevo, 9 – Gura Baciului, 10 – Szarvas, 11 – Lepenski Vir, 12 – Padina, 13 – Alibeg, 14 – Ogrădeana, 15 – Schela Cladovei, 16 – Ostrovul Mare, 17 – Koprivets, 18 – Ovčarovo, 19 – Suceava, 20 – Trestiana, 21 – Sacarovca, 22 – Erbiceni, 23 – Bereşti, 24 – Garvăn, 25 – Mirnoe, 26 – Grebeniki, 27 – Girzhevo, 28 – Soroki, 29 – Baz'kov, 30 – Pugach, 31 – Surskiy, 32 – Igren', 33 – Kamennaya Mogila, 34 – Semenovka, 35 – Kukrek, 36 – Razdol'noe, 37 – Mariupol', 38 – Matveev Kurgan, 39 – Samsonovskoe, 40 – Rakushechnyi Yar, 41 – Razdorskoe, 42 – Rassypnaya, 43 – Kremennaya

lithic. An alternative view[28] is that these were basically hunter-gathering communities which were involved in an exchange network with the farming groups.

There are several radiocarbon measurements for all the three cultural levels of the Soroki II site: 6500–6210 cal. BC (Bln-588) for the lower level (3); 6430–6080 cal. BC (Bln-587) for the second level without pottery; and 6000–5450 cal. BC (Bln-586) for the upper level with pottery. Recently seven radiocarbon date measurements were obtained for Bug-Dniestrian sites on the South Bug. All seven dates satisfy the statistical test for contemporaneity, with an average age of 6121±143 BC[29].

In the process of excavations it was stratigraphically established that the cultural levels of the two sites were associated with the alluvial clayey loam, (up to 2.0 m thick), which lie directly on the riverine pebble. On the Soroki I site the lower cultural level (2) was separated by thick (up to 1,0 m) limestone gravel, probably, washed out from the adjacent ancient ravine. Alongside, two lenses of alluvial sediments are observed, allegedly corresponding to separate periods of abrupt rise in the Dniester river level.

The latter circumstance is clearly visible in the sequence of the Soroki II site (fig. 2: B), where all the three cultural levels are separated by sterile almost equally thick beds of alluvial sediments. Ultimately, the site was buried under thick deposits of sandy clay loam, limestone gravel, caused by a major landslide.

Kamennaya Moghila 1 (the village of Terpeniye, Melitopol region, Zaporožie Province, Ukraine). This important multi-level site lies on a hilltop, on the flood-plain of the right bank of the Molochnaya river's ox-bow (fig 1: 33). It includes several archaeological levels, including the Late Mesolithic one (radiocarbon-dated to 6430–6150 cal. BC, the Early Neolithic levels attributable to the Surian culture (three 14C dates: 6230–6020 (Ki-4022), 6220–5900 (Ki-4226) and 6030–5780 (Ki-7667) cal. BC), the Late Neolithic levels of the Azov-Dnieprian culture (three 14C dates: 5480–5250 (Ki-4025), 4890–4850 (Ki-4024)), 5290–4800 (Ki-4023) cal. BC[30].

Semenovka 1 (the village of Semenovka, Melitopol region, Zaporožie Province, Ukraine). The site, in the Melitopol outskirts (fig. 1: 34) lies on the first terrace of the right bank of the Molochnaya river. The Neolithic deposits of this multi-layer site are found in different parts of the terrace dissected by a brook. In one area the deposits attributed to the Surian culture were identified at the depth from 1.4 to 1.8 m overlying the sterile clayey loam. The available 14C dates for this level are: 6260–6310, 6090–6140, 6080–6140, 5930–5720 and 5890–5620 cal. BC. The second level is associated with the Azov–Dneprian culture of the developed Neolithic. The level consisting of "light-gray humified loamy sand" was found on a sandy elevation and radiocarbon dated to 5480–5200 cal. BC[31]. The pollen analysis performed by G. Pashkevich[32] shows the vegetation of the bunchgrass steppe with rare trees (birch, alder, elm, and hornbeam). Nearly 90% of animal remains from the Neolithic layers belong to the domesticated, predominantly the cattle, followed by the horse, sheep, goat and pig. The wild species include the red deer, bear and bison, with the numerous remains of fish and birds.

Rakushechnyi Yar (fig. 1: 40) is a clearly stratified Neolithic settlement located on a small island in the lower stretches of the River Don, ca. 100 km upstream from the city of Rostov. The site includes has 23 archaeological layers[33], of which the deepest levels (23–6) belong to the Early Neolithic. The levels are 5–15 cm thick and interbedded with the sterile sand or silt. Archaeological deposits, which are not identical in each layer, allegedly resulted from seasonal occupations. Fireplaces and the remains of surface dwelling structures were recognized in several levels. Animal remains consist of both the wild (red deer, roe deer, fox, hare, and numerous birds) and domesticated species (sheep, goat, cattle, dog, and horse – either wild or domestic). Numerous shells of edible mollusks (mostly, *Viviparus*) indicate the importance of food gathering. The flint industry includes end scrapers made from blades and flakes, retouched blades, and borers. Arrowheads and geometrics (symmetrical trapezes) occur only in the upper levels. The pottery is often tempered with organic matter and includes both the flat- and pointed-bottom varieties. Their ornaments are usually restricted to the upper part of the vessel and consist of triangular notches forming horizontal rows, small pits and incised lines. The developed character of the material culture and the apparent absence of Mesolithic elements imply that Rakushechnyi Yar suggest that this was not the oldest Neolithic site in that area, and its preceding stage remains to be found.

Two Early Neolithic sites, **Matveev Kurgan 1 and 2,** are located in the valley of the Miuss River, on the littoral of the Azov Sea (fig. 1: 38)[34]. Site 1 includes the remains of a surface dwelling with hearths and post-holes, as well as an open, allegedly ritual fireplace. At Site 2, open fireplaces and large stone and clay inlays were found. The animal remains of the both sites are dominated by wild species: aurochs, red deer, roe deer, beaver, wolf, wild boar, kulan and wild ass (the latter two were more typical of the Mesolithic age). The domesticated, which formed 18–20% of the total assemblage, include horse, cattle, sheep/goat, pig and dog.

Both sites contain rich lithic industries, with no less than 600 cores (both single- and double-platformed); elongated broad blades and less numerous flakes dominate the assemblage. End scrapers made from large flakes and retouched blades are found together with various tools made from blades. There are about 90 geometric microliths, mostly trapezes, in both symmetric and asymmetric varieties. Several "bifacial" flint axes were reported, yet the number of slate polished axes is much larger. A diverse bone-and-antler industry found at the both sites includes spear- and arrowheads, awls and their fragments. Both sites have yielded slate sinkers for fishing nets. Only a handful of pottery items were found at either site: 6 fragments at the Site 1, and 21, at Site 2. The pottery fragments were unornamented and manufactured of silty clay without any apparent artificial tempering.

Six out of ten dates from the lower layers of both lower levels of Rakushechny Yar and Martveev Kurgan sites, satisfy the criterion for contemporaneity, yielding the average age of 5863±130 BC years. The remaining dates include one younger date (5000 BC) and three older ones (6550–6850 BC)[35].

Another site, **Razdorskoe 1** (fig. 1: 41), lies on the opposite bank of the Don, 0,5 km downstream, on the 4–8 m high terrace of the Don's right bank, on an alluvial fan formed by a brook flowing in a large gully. The site has 23 various cultural levels. Their total thickness reaches 5,7m. The lowermost level is referred to the Early Neolithic Rakushechny Yar Culture[36] (the only 14C date for this level, 9470±310 BP uncal. (IGAN-722), is apparently too old, probably due to the contamination). The second and the third lower levels (or 22nd and 21st) are associated with various horizons of the Lower Don (or Mariupol) culture of the developed Neolithic–Early Chalcolithic. The settlement is still in the investigation process and only preliminary data are available[37]. The pollen in the low levels were formed in an early Holocene environment dominated by the *Carex-Gramineae* steppe and pine forests spreading along sandy terraces[38].

Mirnoe (Kilia region, Odessa Province, Ukraine) is one of the few fully investigated Late Mesolithic sites in the of the Northwestern Black Sea coastal area (fig. 1: 25). The site lies on the floodplain of the Dracula River, 800 m to the south-west from the southern limit of the village of Mirnoe. The site was discovered in 1963; systematic excavations were carried out in 1969–1976 by V. Stanko, resulting in the exposure of 1807 sq. m of archaeological deposits[39]. There is only one radiocarbon date for the cultural level: 6230–5890 cal. BC (Le-1647). A "hearth area" identified in the central part of the settlement, included several hearths and so-called "backers' pits", with a high concentration of animal bones and flint pieces. As suggests the use-wear analysis, lithic tools were used predominantly for butchering and skin dressing. Retouched blades are also numerous, while the cores are few in number. 18 clusters of implements were identified in the peripheral part the site, their boundaries not always being clear. Among 214 animal bones found at the site were identified: horse (minimum number of individuals – 7); aurochs (3), saiga (3) and fox (1). The finds of elongated prismatic blades with characteristic "sickle-gloss" were particularly significant; basing on the use-wear analysis they were identified as "reaping knives" intended for harvesting edible plants. Several potentially edible plants were identified by G. Pashkevich in the cultural deposits: white goosefut (*Chenopodium album);* black bindweed (*Polygonum convolvules)*; hairy vetch *(Vica hirsuta)* and sorrel (*Rumex acetosa)*[40].

The Mesolithic layer from 0,15 to 0,30 m thick was found in a yellowish sandy clay overlying light yellow-brown heavy clayey loam of apparently lacustrine origin. Archaeological layer is overlain by light brownish clayey loam deposited in an environment of increased lake level (fig. 2: A). The pollen analysis shows that the Mesolithic settlement occurred in an environment of the forb-bunchgrass steppe. The pollen spectra of the brownish clayey loam show an environment of the mesophytic steppe with rare broad-leaved trees and shrubs, apparently spread along the river banks[41].

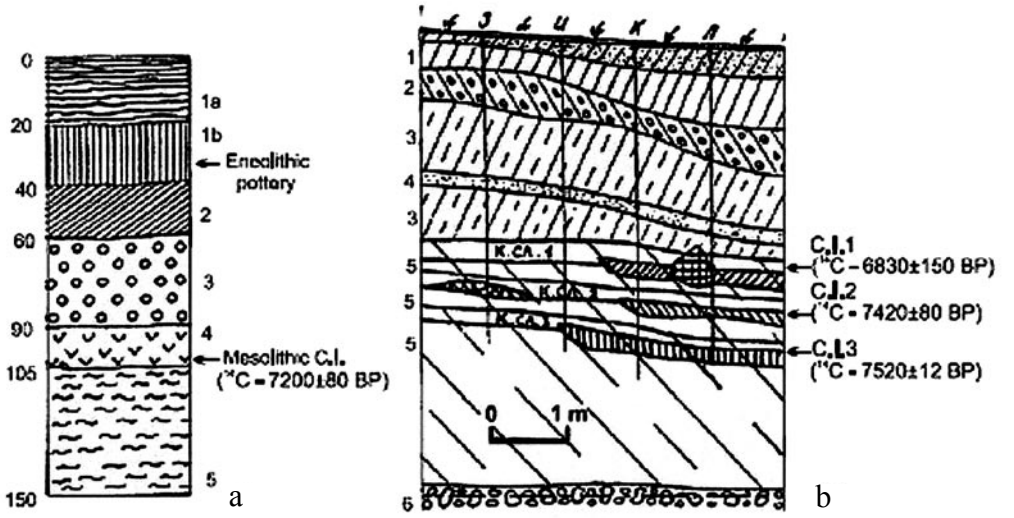

Fig. 2. Stratigraphic sequences of Mirnoe (A) and Soroki II (B) sites:
a: 1a – turf; 1b – clayey loam, the Chalcolithic level; 2 – light gray sandy clay loam with plant detritus; 3 – clayey loam; 4 – yellowish clayey loam, the Mesolithic level; 5 – light brown heavy clayey loam (after **В. Н. Станко**. Мирное...);
b: 1 – gray forest soil; 2 – clayey loam with calcareous rubble; 3 – heavy clayey loam; 4 – sandy clay loam; 5 – light loess-like clay loam, archaeological level; 6 – pebble (after **В. И. Маркевич**. Буго-Днестровская культура...)

The Distribution Areas of Mesolithic-Neolithic Cultural Entities

We proceed from the well-known provision that every significant cultural phenomenon of the past (from a site to archeological cultures), covered as a distinct territorial space. The confines of the space around a site (often referred to as *site exploitation territory*, *SET*) covered the area habitually used by site occupants as source of their livelihood and an arena of various activity. Its concrete location were dictated by numerous factors which included the prevailing subsistence (hunter-gathering, broad-spectrum agriculture, predominantly stock-breeding), type of site (base-camp, permanent settlement, seasonal encampment etc.), general lifestyle (peripatetic hunting, sedentary, seasonal transhumance). No less important were the availability of sustainable and predictable natural resources within the *site catchment areas (SCA*). In the case of hunter-gathering subsistence, the repertoire of these resources includes the landscapes suitable for hunting, fishing, collecting of edible mollusks and wild foods, as well as sources of raw materials. In the case of early agriculture, this includes arable land and the combination of climatic factors referred to as agro-climatic potential. The absence of archaeological sites in any landscape area may be seen as indices of adverse environmental conditions impeding the human settlement.

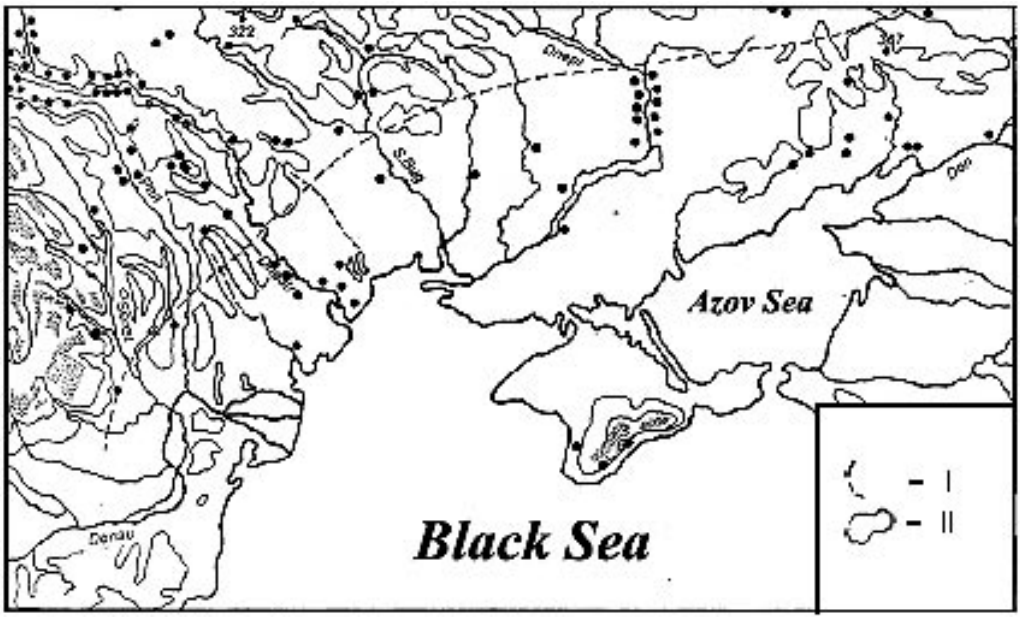

Fig. 3. Key Late Paleolithic sites in the North Pontic Area
(after **Е. В. Смынтина.** К проблеме типологии... with additions):
I – present steppe/forest-steppe limit; II – 200 m contour

Our analysis is based on the distribution of archeological sites of the four main cultural periods: the Late Mesolithic, the Early and the Late Neolithic and the Early Chalcolithic. The cultural development of these periods falls on the very Early and, mainly, on the period of the Middle Holocene, in the range between ca. 10000 and 4000 cal. BC.

An intensive settlement of the North Black Sea steppe area starts with the Mesolithic. It becomes apparent from the comparison of the distribution of Late Paleolithic (fig. 3) and Mesolithic sites (fig. 4). These maps are based on E. Smyntyna[42] with the additions for Moldova and the eastern provinces of Romania. Their comparison clearly demonstrates, if in the Late Paleolithic period the majority of the sites concentrate in the present-day forest-steppe zone and to the north of it, whereas in the Mesolithic period the sites are shifted to the south into the present-day littoral zone. It is principal that many of them are in immediate vicinity of the contemporary coastal line, occupying also the low plain plots of the littoral. It is clearly observed as well for the steppe Crimea, the Northern Black Sea Littoral and the Azov Sea Littoral as for the Northwestern Black Sea Littoral, including Dobruja.

The peculiarities in the spatial distribution of the Late Paleolithic vs. Mesolithic sites clearly stem from their environmental settings. In the conditions of the Last Glacial Maximum the population densities of Late Palaeolithic groups markedly increased in the

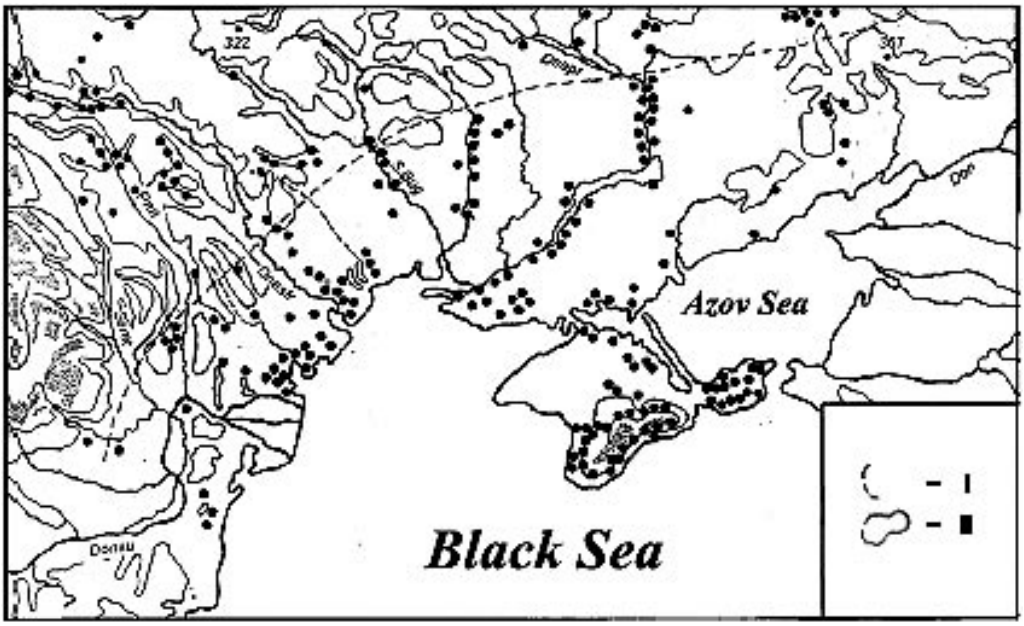

Fig. 4. Key Late Mesolithic sites in the North Pontic Area (after **Е. В. Смынтина.** К проблеме типологии... with additions)
I – Present steppe/forest-steppe limit; II – 200 m contour.

periglacial zone of Eastern Europe, where the conditions for large game hunting were optimal. These groups only occasionally penetrated the Pontic Lowland, and settled in the river valleys of small rivers. In contrast, during the early Holocene, when the large game became extinct, the Mesolithic groups were settled predominantly in the Pontic Lowland, where deep river valleys and low mountain slopes offered larger and predictable resources for hunting, fishing and food-gathering. As follows from the spatial distribution of Mesolithic sites in the Danube-Dniestr interfluve in southern Besarabia[43], a part of Mesolithic sites occupy rather high places (fig. 5, altitudinal levels IV–III). But several sites (Mirnoe 1, 2, 3, Vasilievka, Divizia, Noveselitsa 1, Tatarbunary 1 and others – fig. 5: 1–9) are found on the lowest – Ist–IInd horizons, at the altitudes from 10–15 to 40–50 m above sea-level. Significantly, the low position of the Mesolithic sites is equally typical of the Romanian Dobruja. It is particularly the case of Garvăn site (fig. 5: 13) is situated on the lowest sandy terrace, flooded currently by the Danube[44]. One of the possible explanation for this is the seasonal transhumance, with the largest sites of sedentary type (Mirnoe 1, Belolesye) being located on the lowermost levels, close to the river floors, and the smaller sites, found on the foothills, resulting from the resettlement of smaller groups during the summers.

Taking into account the 14C dates for Mirnoe and other Late Mesolithic sites (Erbiceni, Kamennaya Mogila I, Marievka and Vasilevka), as well as those for Early Neo-

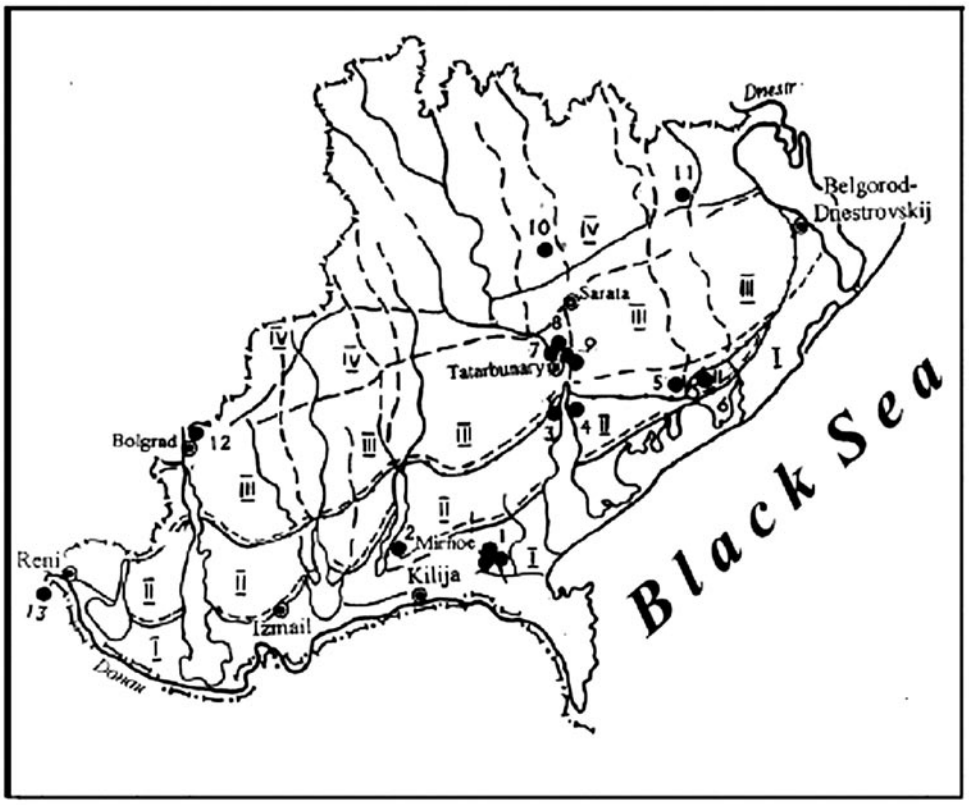

Fig. 5. Late Mesolithic sites in the Danube-Dniestr interfluve:
Altitudinal levels: I – 10–20 m; II – 20–50 m; III – 50–85 m; IV – 85 – 85–140 m.
Sites: 1 – Mirnoe 1–3; 2 – Vasilievka; 3 – Borisovka; 4 – Trapovka; 5 – Divizia;
6 – Novoselitsa 1; 7 –Tatarbunary 1; 8 – Kogylnik; 9 – Belolesye 1, 4; 10 – Cantemir;
11 – Tsarichanka; 12 – Zaliznichnoe; 13 – Garvăn (Romania)

lithic sites discussed below, the Late Mesolithic of the North Pontic Plain may be dated to the period between ca. 7000–6000 cal. BC. The Neolithic epoch in the discussed area is subdivided into two main periods. The earlier period in the Balkan-Danubian area is connected with the development of the Protoseskl–Karanovo I–II–Starčevo–Criş cultural community, which spread eastwards from the Carpathians almost up to the Dniester River on the later stages. The development of the Early Bug-Dniestrian, Surian, Rakushechny-Yarian, the early stages of Azov-Dnieprian and the Kremennaya II type sites in the Pontic Lowland fall roughly on the same period. This period, without taking into consideration the non-ceramic period of Thessaly is approximately dated between 6500 and 5500 cal. BC.

The Later Neolithic period in the Balkan-Danubian area coincides with the occurrence of the Vinča type cultures (as typified by Vinča-Turdaş, Banat, Vădrasta, Dudeşti),

the Hamangia, and the Boian (early stages), and to the East from the Carpathians – by the development of the Linear Pottery culture (in the Carpathian-Dniester area), late Bug-Dniestrian, late Azov-Dnieprian (Mariupol) and the Lower Don culture. This period is dated to 5500–5000 cal. BC.

The earlier and later sites of Protoseskl–Starčevo–Criş–Karanovo I–II culture encompass vast areas in the Balkans' interior, while being totally absent in the coastal zone of the Western Black Sea Littoral. Significantly the eastern limit of Karanovo I–II settlements runs along the low and middle courses of the Marica River (Hoca Çeşme, Aşağı Pinar), the upper course of the Kamčiya River (Ovčarovo and others), and the Lom River (Koprivets and other), which flow into the Danube. No Early Neolithic sites have ever been found in the Bulgaria's Black Sea coastal area, despite intensive surveys. The Bulgarian experts have repeatedly underestimated this evidence[45]. Fig. 6 shows the main Early Neolithic sites in the discussed with the omission of the steppe Crimea, which is insufficiently studied and has no radiocarbon dates[46].

To interpret this phenomenon one should remember that the subsistence of all Balkan early Neolithic sites mentioned above was solidly based on agriculture and stock-rearing. Since their first appearance in Greece at about 7000 BC cal one may witness a rapid expansion in the Balkans of village-type settlements with the economies based

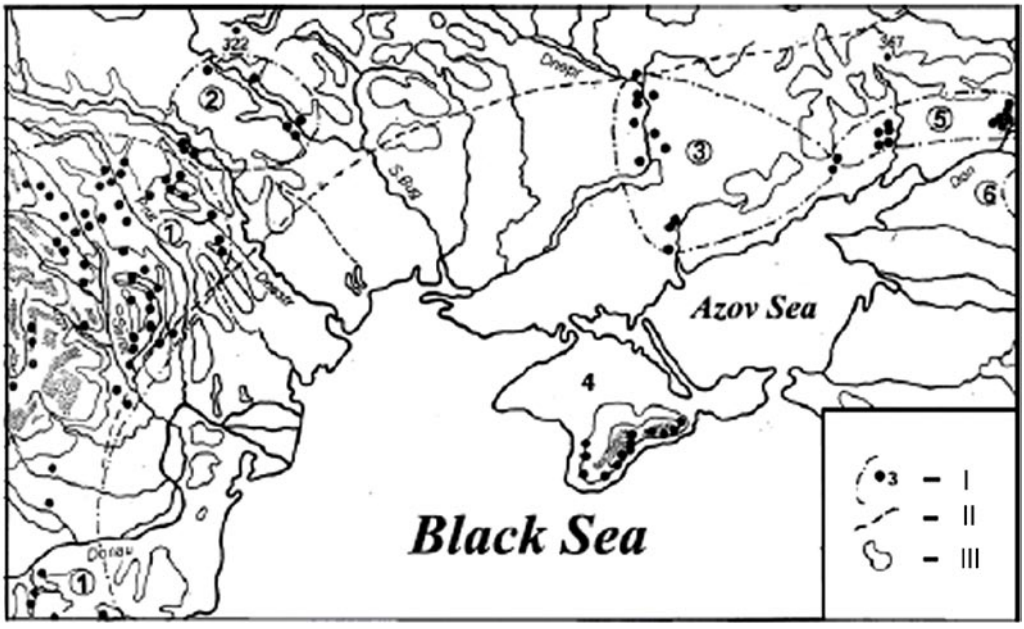

Fig. 6. Early Neolithic key sites and cultures in the of the North Pontic Area:
Cultures: 1 – Starčevo-Criş – Karanovo I–II (Koprivets 1–2); 2 – Bug-Dniestrian (early); 3 – Surian; 4 – Crimean; 5 – Rakyshechny-Yarian; 6 – Kremenian;
I – sites and cultural areas; II – present steppe/forest-steppe limit; III – 200 m contour

on the exploitation of domesticated animals and plants of Near Eastern origin: sheep, goats, pigs and cattle for animals, and wheats (*Ttiticum dicoccum, T. monococcum, T. aestivum*), barley (*Hordeum vulgare ssp. distichum*), pulses (*Lens culinaris, Vicia ervilia, Pisum sativum*) for plants[47]. Correspondingly, these settlements were located in the areas with a high value of agro-climatic potential: terraced intermountain depressions sufficiently rich in water resources, with light easily arable soils[48]. In Romania, the Starčevo–Criş sites are found in the Lower Danube Plain, and Moldova, usually on the lower river valleys[49]. Obviously, the present-day western Black Seal littoral, with its poor soils and dry and unpredictable climate offered much less opportunities for farming economies at their early stages.

The location of Early Neolithic sites on the lower geomorphic level is particularly typical of the Eastern steppe area, as exemplified by Semenovka 1 (lower level), in the vicinity of Melitopol (fig. 1: 34). Further west, in the basin of the Lom River (fig. 6, left low corner) several Early Neolithic sides, classified by V. Popov as the Koprivets group, are found on the lower flood-plain. But, as the author notes, such location is inherent only of the sites, corresponding to the lower horizons of the settlement of Koprivets (levels 1, 2). All the remaining sites of later periods are abruptly shifted to the south and are situated, as a rule, on higher levels, at 150–250 m above sea-level[50]. The lowest level of the Koprivets sites includes the monochrome pottery and the second one may reliably synchronized with the Karanovo I[51]. There are no 14C dates available for Koprivets, but based on the Karanovo I parallels its age may be assessed as about 6000–6300 cal. BC. Three out the five dates known for the settlement of Semenovka 1 (see above) point out to the same interval. The low position of these sites may be due the fact that densely forested flood-plain levels abundantly rich in wildlife resources were more attractive for the Neolithic settlers in the area, where the hunting-gathering activities played a significant part in the subsistence.

The cultural situation in the entire North Pontic area changes abruptly with the transition from the Early to the Late Neolithic. At that time, the forest-steppe Eastern Carpathian area became densely populated by the settlements of agricultural Linear Pottery culture (fig. 7: 4). The later stages of Bug-Dnestrian (fig. 7: 5) continued their development further east. As previously, the steppe zone remains scarcely populated. Apparently, there are no sites in the basins of the Lower Dniester, the South Bug, and partly the Dnepr. The Azov-Dnieprian (Mariupol), the Low Don sites and those of the Crimea's "Steppe Neolithic" (fig. 7: 6–8) are relatively rare. But it is notable that despite their scarcity several sites are found on the Azov Sea littoral, as well as in the northern and eastern Crimea (respectively Dolinskoe, Frontovoe) and on the Lower Don (Liventsovka, Botai, Zalivnoye). During this period a new settlement appears at Semenovka resumes (level 3).

Yet there is indirect evidence suggesting that the scarcity of sites not adequately reflects te population density. This may be illustrated by the position of the Mariupol

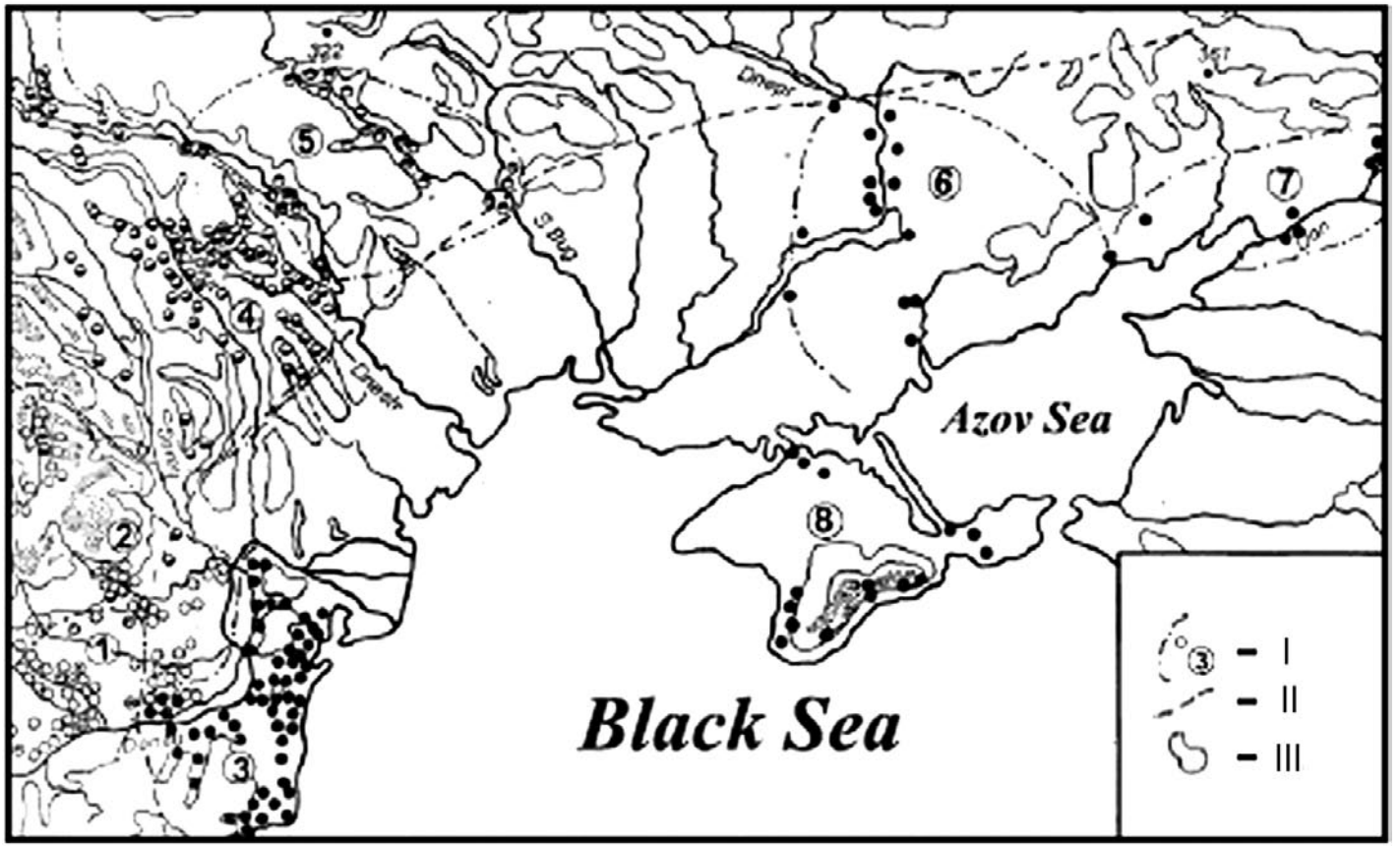

Fig. 7. Late Neolithic sites and cultures of the in the North Pontic Area:
Cultures: 1 – Dudeşti; 2 – Boian (early); 3 – Hamangia; 4 – Linear Pottery; 5 – Bug-Dniestrian (late); 6 – Azov-Dniepr (Mariupol); 7 – Lower Don; 8 – Crimean;
I –sites and cultural areas; II – p resent steppe/forest-steppe limit; III – 200 m contour

cemetery, located at the altitude 15–20 m above the sea level on a residual island in the mouth of the Kalmius on the Azov Sea coast[52].

The most significant changes occur in the Lower Danube area and the Dobruja, the lowland with numerous lagoons and marshes and densely forested residual islands[53]. In the previous period – the Early Neolithic, this entire area was virtually void. By contrast, in the Late Neolithic period it became immensely rich in archeological sites belonging to various cultures, which sites were often found on low-laying and presently flooded levels. On the left bank of the Danube these are the sites of the Dudeşti[54] and the sites of the early stages of the successive Boian cultures[55] (fig. 7: 1–2). In Dobruja these are the sites of the Hamangia culture[56] (fig. 7: 3). So far, there are only few radiocarbon dates for the Dudeşti and Hamangia sites and they refer only to their later stages. However, it is generally accepted that the Dudeşti culture is synchronous with the Hamangia's early phases. On the other hand, the Dudeşti Culture is usually attributed to the Vinča cultural assemblage. The emergence of these two cultures on the Balkans dates to about 5500 cal. BC, and correspond to the early stages of the Vinča-Turdaş and Banat cultures. Therefore, at this time, the Lower Danube and Dobruja became available for large-scale settlement of culturally variegated groups which subsistence was largely based on grain agriculture and stock-rearing with the lesser importance of hunting and fishing. This period of intensive lowland settlement continued for the whole existence period of the Dudeşti Culture the early stages of the Boian and Hamangia cultures, until about about 5000 cal. BC. The numbers of sites belonging to the final stages the Boian and the Hamangia cultures, respectively in the Lower Danube (fig. 8: 1), and the Dobruja (fig. 8: 2) culture are considerably reduced, compared with the previous period (cf. fig. 7: 2, 3).

The tell-type sites of Early Chalcolithic Gumelnita A–Aldeni II culture in Bulgaria and Romania start appearing at ca. 4900 cal. BC. They usually cluster on elevated levels in the Lower Siret and the Lower Pruth areas[57] (fig. 8: 3a).

The sites of Gumelnița–Bolgrad type were the first agricultural settlement to appear on the steppe littoral of Southern Bessarabia[58]. The sites in the Danube-Dniestr interfluve were usually located on uplands: the terraced banks of fresh-water lakes and *limans*; the banks of major rivers (the Danube and the Prut), and, in a few cases, the banks of smaller rivers and streams. These naturally fortified settlements had easy access to arable soils: the carbonate *chernozem* developed on top of the loess-covered terraces. The largest settlements were in close proximity to the river estuaries transgressed by the sea, which was two to three meters above present-day sea level[59]. Two radiocarbon dates obtained for the site of Vulcaneşti II in Southern Moldova suggest the age 4896–4006 cal. BC (MO-417: 5810±150 bp and LE-640: 5300±60 bp)[60].

Subsequently, the Black Sea littoral becomes virtually spangled with the sites of Gumelnița–Karanovo VI–Varna type (fig. 8: 3b). Notwithstanding repeated culture changes, the sites in the littoral zone incessantly grew in number until the Middle Chalcolithic period, marked by the emergence of the Cernavodă I–Pevets culture at ca. 4200–4000 cal. BC[61].

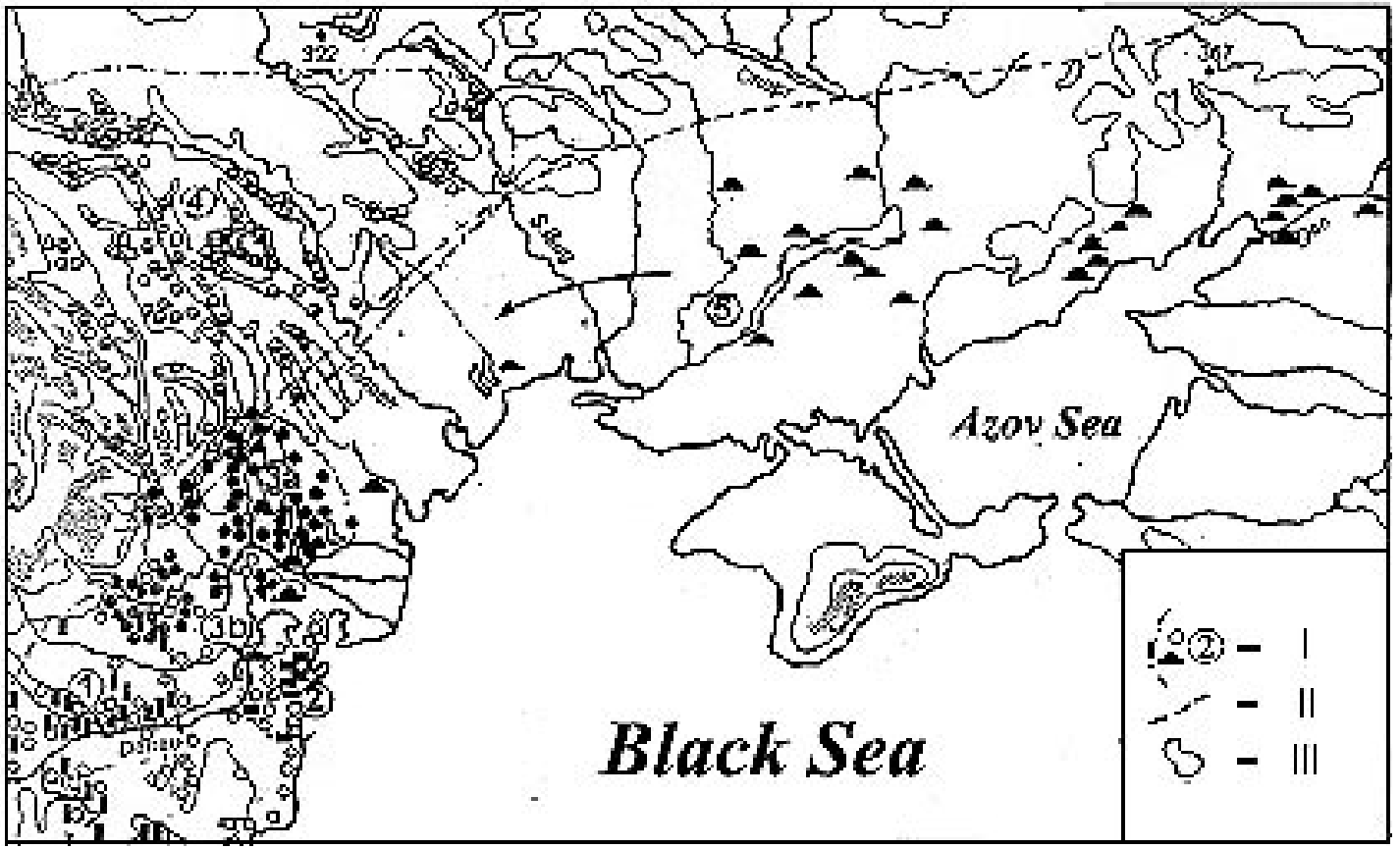

Fig. 8. Early–Middle Chalcolithic sites and cultures in the of the North Pontic Area:
Cultures: 1 – Boian (late); 2 – Hamangia (late); 3a – Bolgrad – Aldeni II; 3b – Gumelnița–Karanovo VI; 4 – Precucuteni – Tripolie A; 5 – Novo-Danilovka-type (the arrow shows their westward movement).
I – sites and culture areas; II – present steppe/forest-steppe limit; III – 200 m contour

The large-scale spread of agricultural communities in the forest-steppe zone east of the Carpathians was marked by the sites of the Precucuteni II-III–Tripolie A culture, 4500–4350 cal. BC (fig. 8: 4). At that period, the situation in the steppe zone remains obscure. The ground burials and the first barrow complexes of Novo-Danilovka type start widely spreading in the steppe at the end of the Precucuteni–Tripolie A transition period and the initial Cucuteni A–Tripolie B1 (fig. 8: 5). These burial sites, apparently genetically related to the Khvalynsk culture on the Middle Volga, are deeply wedged into the area of farming cultures in the west, including the Tisza Plain and Thrace, and correspond to the first wave of the Indo-European dispersal, according to the Gimbutas' concept.

Discussion

As follows from the previous review, considerable changes in the spatial distribution of prehistoric cultural entities of the Balkans–Northern Black Sea area that occurred during the course of the Early and Middle Holocene became apparent. These changes include the subsistence, settlement pattern, and cultural affiliations of local communities. The changes that might have implied human migrations of various scale, cultural diffusion, interactions or combination of these processes, proceeded against the background of significant environmental shifts. They included the climatic change, modifications of vegetation and soil types, as well as the migrations of Black Sea shoreline. The latter became in the focus of both scholarly and public interest particularly after series of publications by W. Ryan and W. Pitman. These writers have suggested the occurrence at ca. 8200 BP (ca. 7200 cal. BC) and 7150 BP (ca. 6000 cal. BC) of catastrophic breaches of Mediterranean saltwater into the Black Sea resulting in an abrupt drowning of more than 100000 sq. km of previously exposed Black Sea continental shelf. This, in the writers view, led to a rapid spread of farming "from Greece, Bulgaria, Romania and the coast of Marmara Sea" inland, along the major river valleys of Southeastern Europe.

Multiple investigations conducted by marine geologists in the Black Sea area and supported by recent multidisciplinary research[62] clearly demonstrate that the Ryan-Pitman's "flood" scenario is based on a limited scope of incorrectly interpreted evidence. Therefore it cannot be any longer seriously taken into account. Nonetheless, recent investigations confirm the occurrence of multiple fluctuations and migrations of Black Sea coastline in the course of the Holocene. The question arises whether these changes in the coastal environment might have had a discernible impact on the subsistence and movements of prehistoric groups.

It is quite obvious that the migrations of the shoreline that proceeded at a sufficiently slow rate (2,5–5 cm/year) and were restricted nearly exclusively to the present-day continental shelf, could not have had any direct effect on prehistoric groups beyond the littoral zone. The maximum rise of sea-level which resulted in the formation of trans-

gressive shoreline at the altitude of 2,0÷2,5 m above the present sea-level, occurred 3000–2800 cal. BC. The effect of this and similar sea-level rises was restricted mainly to the river estuaries and *limans* which were repeatedly transgressed by the sea.

The general trend of the Holocene transgression in the Black Sea was controlled by the glacio-eustasy: the rise of water volume in the global ocean due to the post-glacial melting of major ice-sheets. At the same time, the secondary and tertiary fluctuations observable in the Black Sea might have caused by the local factors, such as tectonics. No less important factor was the change in the Black Sea water balance, and, in the first place, the discharge of rivers flowing into the Black Sea, which presently is estimated as 310 km^3 of fresh water annually. Therefore, the observable sea-level rises correspond to sufficient increases in the volume of rivers' discharge, which, in its, turn, should reflect an increased precipitation in these rivers' catchment areas. Hence, the observed Black Sea level rises may be considered as indicative of episodes of increased precipitation in the river basins. This might have a considerable effect on the environment, and human movements in the steppe and forest-steppe area.

The curve of Holocene sea-level changes indicates the occurrence of low-frequency cycles with periods of 1800–2000 years. It should be noted that evidence of the 1470-year cycle was reported from the glacial-age Greenland ice record[63]. It has been suggested that similar cycles are acknowledgeable throughout the entire Holocene as well[64]. Much earlier the cycles of similar magnitude were identified by Shnitnikov for Russia's Holocene records[65].

Bearing in mind the above-cited evidence and general consideration we shall examine below the possible effect of sea-level changes on the Neolithisation of the Balkans and North Pontic area in the course of main chronological units.

1. **Mesolithic (10000–6500 cal. BC).** The onset of the Holocene marked the beginning of the Chernomorian transgression in an environment of rising temperature of precipitation. During the Bugazian stage, 11–9 ky. BP, the level of the brackish-water basin with rare occurrences of Mediterranean salt-water molluscs reached 18 m below the present. During the Vytyazian stage, 9–7,1/6,5 ky BP, the sea-level attained ca. 9 m. below the present. During these stages, the sea nearly entirely submerged the terraced alluvial plain, deeply transgressing into the estuaries. The Dnepr estuary took form of a large gulf with the coast-line close to the present one. A large section erosion-denudation plain remained south of the Dnepr Valley.

The Mesolithic sites (10–8 ky BP) show a diversified settlement pattern. The largest settlements (such as Mirnoe) are found on the lower terraces of smaller-size estuaries. The subsistence of these sites was nearly entirely based on the seasonally-patterned exploitation of wetland resources with an increased reliance on the plant food. Smaller sites at higher levels were formed by groups budding off from the main centre during seasonal transhumance.

2. **Early Neolithic (7000/6500–5500 cal. BC)**. Starting with 6,5–6,0 ky BP, an Altithermal environment, with the optimal rise of temperature and precipitation became established in the Black Sea area.

This period corresponds to the occurrence of Protoseskl o–Starčevo–Criş–Karanovo I-II cultures in the Balkans' interior, and Early Bug-Dniestrian, Surian, Rakushechny-Yarian, the early stages of Azov-Dnieprian and the Kremennaya II type sites in the North Pontic area. During this period there occurred several considerable sea-level rises, which never exceeded the level of 9 m below the present one. The Late Bugazian phase, reached the level of –16/17 m at 7330–7050 cal. BC). During the Vityazian stage (7040–5740 cal. BC) the sea-level rose to – 9÷10 m. Consequently, the emergence of early farming settlements in Greece and their large scale spread in the Balkans coincided with several transgressive phases which are indicative of the general increase of rainfall.

3. **Late Neolithic (5500–4000 cal. BC)**. During this stage the sea-level raised to 1–2 m above the present, submerging the Kilia section of the Danube Delta as well as a considerable part of the lower Dnepr valley. During the regressive stages small islands arose at the place of the Odessa Bank and Tendra sand-pit. During that stage the main features of present-day relief were formed in the coastal area, with two major catchment areas in the south-west and north-east, separated by the watershed 180–300 m high. The modern soils developed on the Quaternary substratum, included at least 20 varieties, including highly fertile chernozems. The forests were restricted to the watersheds and river-floors This period corresponds to the large spread of Linear Pottery Culture in the western Balkans and Moldova; the later stages of the Bug-Dnestrian, the Azov-Dnieprian (Mariupol), the Low Don sites and those of the Crimea's "Steppe Neolithic" further east. Considerable changes occur in the previously unoccupied Lower Danube and Dobruja, where the settlements of Dudeşti , Boian and Hamangia cultures appear. The sites of Gumelniţa–Bolgrad type were the first agricultural settlement to appear on the steppe littoral of Southern Bessarabia. This period includes several significant sea-level rises: the late Vitazian transgression at ca. 6200 BC reaching –8 m, and also Early Jemetian culminating at 4600 and 4200 BC, close to the present sea-level. This means that the expansion of farming settlements covering hitherto areas of north-western coastal area proceeded in an environment of increased humidity and sea-level rises.

4. **Chalcolithic (4500–3200 cal. BC)** During that stage the main features of present-day relief were formed in the coastal area, with two major catchment areas in the south-west and north-east, separated by the watershed 180-300 m high. The modern soils developed on the Quaternary substratum, included at least 20 varieties, including highly fertile chernozems. This period marks an intensive expansion of Cucuteni–Tripolie early farming settlements in the Northern Pontic forest-steppe.

Conclusions

1. As follows from the above-cited records, no evidence is available to substantiate catastrophic sea-level rises that may be linked with large-scale migrations of early farming groups.

2. The alleged sea-level rise at ca. 8200 BP (ca. 7200 cal. BC) actually preceded the emergence of early farming communities in the Black Sea area. The Late Mesolithic groups that existed at that time were basically stable with a limited evidence for seasonal transhumance.

3. According to reliable evidence, at the time of the alleged "Flood" at 7200 BP (ca. 6200 cal. BC), the sea-level rose from –32 to –8 m and in no way affected the agricultural settlements which were usually located within intermontane depressions at a great distance from the littoral. An expansion of early farming settlements acknowledgeable at that time in Greece and Western Balkans is due general increase of precipitation that created the conditions favourable for early farming.

4. Significantly, periods of major extension of farming communities in the Northwestern and Northern Pontic area coincide with the minor Black Sea transgressions. This may be due to the general increase of precipitation in the river catchment which enhanced the agro-climatic potential in the steppe and forest-steppe.

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КОЛЕБАНИЯТА НА ЧЕРНОМОРСКОТО НИВО, КЛИМАТИЧНИТЕ ПРОМЕНИ И НЕОЛИТИЗАЦИЯ НА СЕВЕРНОТО ПРИЧЕРНОМОРИЕ И БАЛКАНИТЕ

ВАЛЕНТИН ДЕРГАЧОВ (КИШИНЕВ), ПАВЕЛ ДОЛУХАНОВ (НОТИНГАМ)

В статията се обсъжда неолитизацията на Югоизточна Европа, включително и на Северното Причерноморие, във връзка с околната среда и по-специално с ефекта от промените в нивото на Черно море. Няма доказателства за катастрофални наводнения, които може да са причинили големи миграции на ранните земеделски населения. В същото време е очевидно, че главните етапи в разселването на земеделските групи съвпадат с повдигания на морското равнище, които може да са били причинени от повишения дебит на речните басейни.

БЕЛЕЖКИ КЪМ ПРОУЧВАНЕТО НА КУЛТУРНИТЕ КОНТАКТИ В РАЙОНА НА ДНЕШНОТО БЪЛГАРСКО ЧЕРНОМОРИЕ ПРЕЗ КАСНИЯ НЕОЛИТ

ВЛАДИМИР СЛАВЧЕВ (ВАРНА)

Дълго време късният неолит оставаше един от най-слабо изследваните периоди от праисторията на днешните български земи. Едва в последните десетина години се появиха подробни и задълбочени изследвания по въпроса, разкриващи редица характеристики, закономерности и особености в развитието на тази интересна и важна част от миналото на Югоизточна Европа. И докато напредъкът в проучването на късния неолит в Тракия[1] и Северна България[2] е видим, изясняването на тази проблематика за района на българското Черноморие значително изостава. След разкопките на селището Усое край с. Аспарухово, Дългополско[3] през първата половина на 70-те години на XX в., на селището на брега на Шабленското езеро по същото време и на селището на брега на Дуранкулашкото езеро[4], проучено в края на 70-те–началото на 80-те г., материалите от които или не са публикувани, или са известни само по предварителни съобщения, публикацията на некропола край Дуранкулак[5] е крайно недостатъчна да запълни празнината в знанията ни за епохата, тъй като къснонеолитните гробове (отнасящи се към I и II фаза на културата Хаманджия) в него съдържат твърде малко инвентар. От друга страна, липсата на яснота и изоставането в проучванията се отразява негативно на знанията ни за неолита като цяло, а ограничената изворова база силно стеснява възможностите за синхронизация със съседните археологически култури и изясняването на контактите с тях. Ето защо всяка информация, колкото и фрагментарна да е, има голямо значение за разбирането на процесите, протекли на територията на днешното българско Черноморие през късния неолит. Разбира се, най-важно в това отношение си остава публикуването на проучените вече споменати обекти, без цялостната обработка на материалите от които характеристиката на археологическите култури от района остава крайно ограничена и непълна[6].

Съзнавайки големия риск от интерпретация на каквито и да е къснонеолитни находки от Черноморския ареал на този етап, особено без стратиграфски контекст, смятам все пак, че обнародването на следващите материали е наложително и полезно. Тази керамика има своето значение като важен аргумент в изясняването на хронологическите рамки и уточняването на вече направените синхронизации на къснонеолитните култури. Въпреки това искам да подчертая, че идеите, изложени

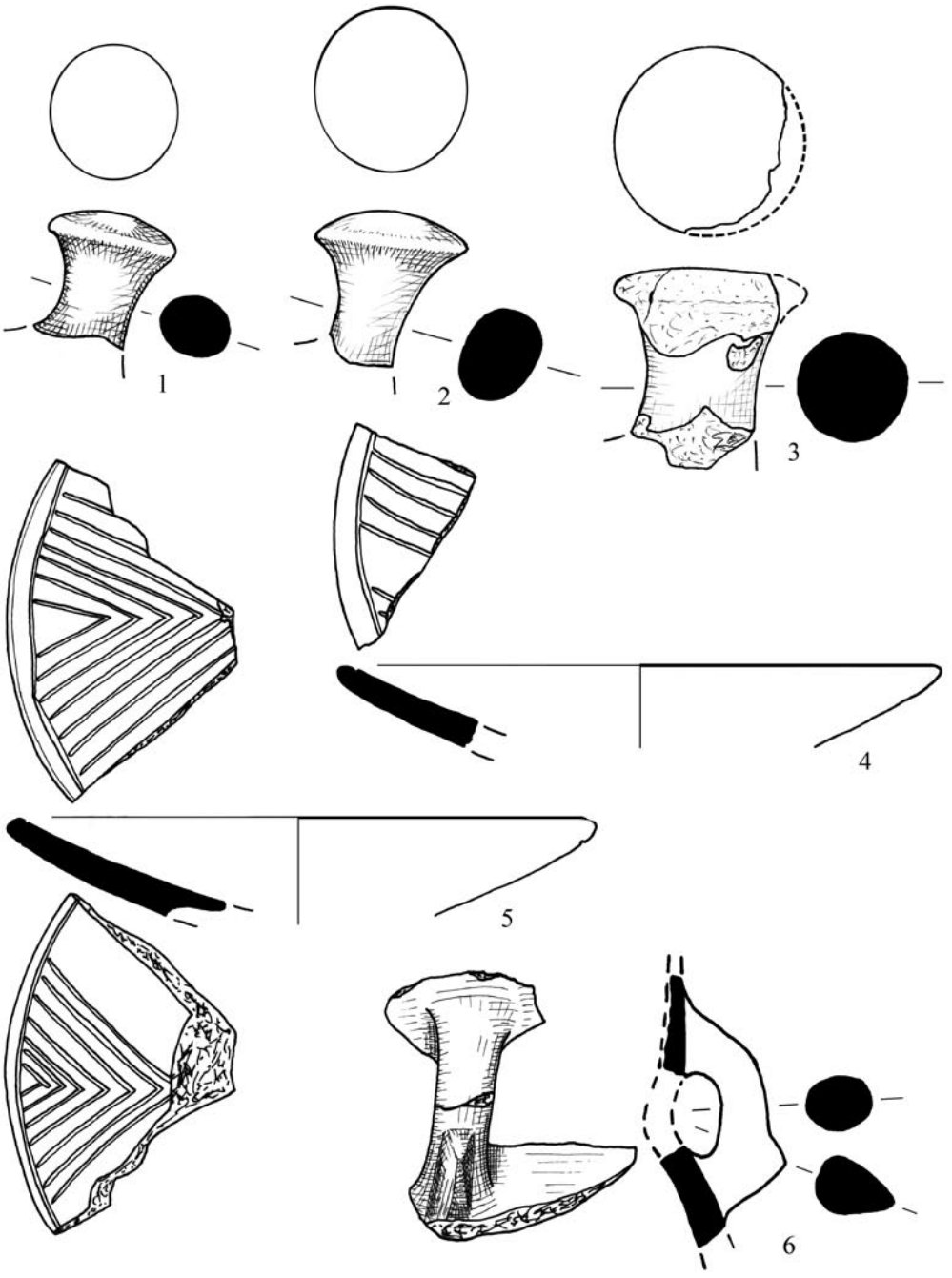
Фиг. 1. Обекти, споменати в текста:1– Дуранкулак; 2 – Шабла; 3 – Провадия; 4 – Усое; 5 – Каблешково; 6 – Созопол; 7 – Приморско; 8 – Ашаъ Пънар; 9 – Яръмбургаз; 10 – Топтепе; 11 – Караново; 12 – Копривец; 13 – Градищя Урмилор; 14 – Черника

при представянето на материала, имат общ характер, подлежат на следващи уточнявания и детайлизиране, а целта им е да набележат някои насоки за бъдещи изследвания. Далеч съм от мисълта, че те изясняват сложната проблематика на контактите в района на Западното Черноморие в края на VI хил. пр.Хр. По-скоро

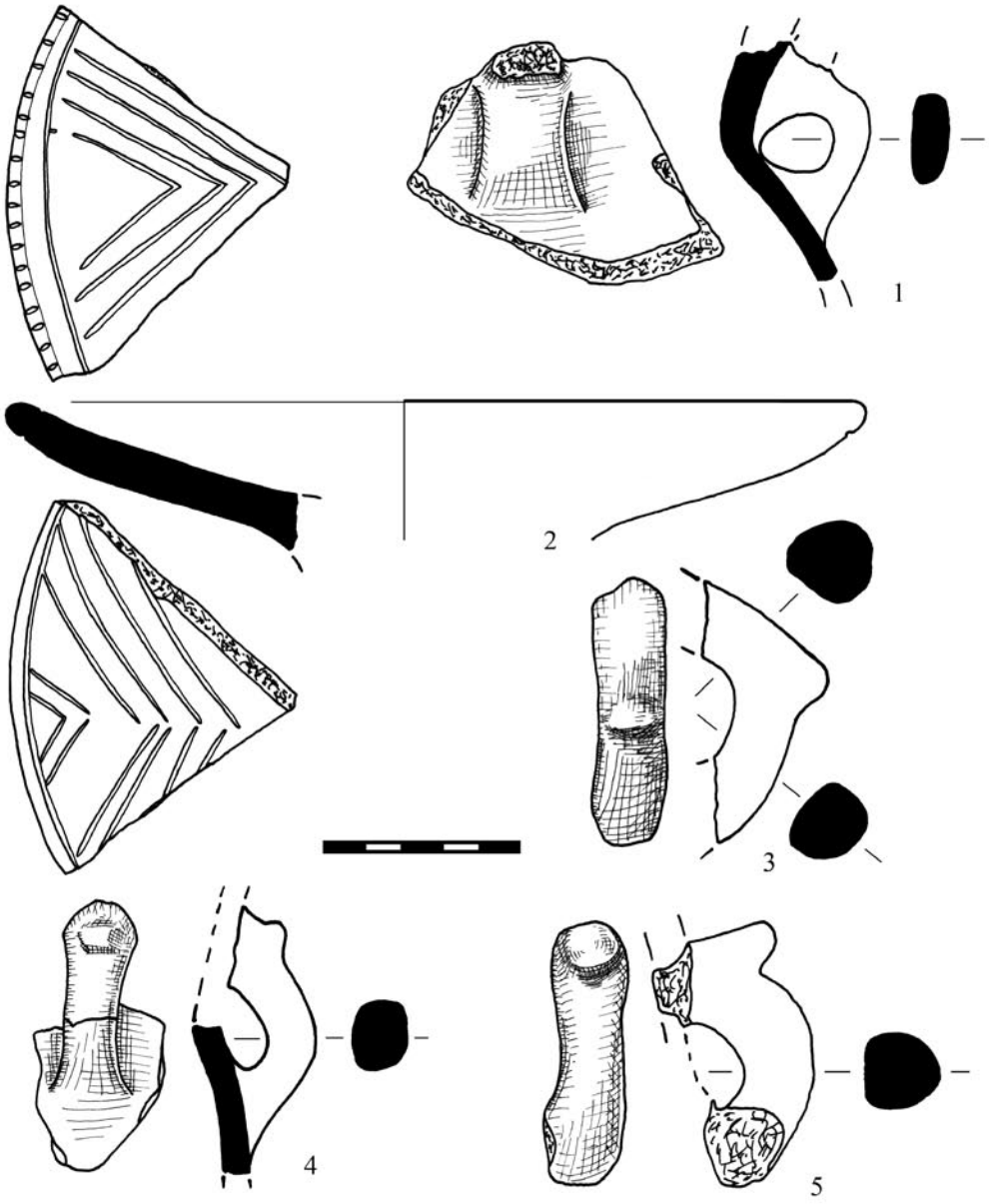
се надявам да са импулс за по-нататъшно проучване на този интересен период на споменатата територия.

През 1979 г. на брега на Дуранкулашкото езеро е открито късноеолитно селище на културата Хаманджия, наречено Дуранкулак–Нивата[7]. В него е регистрирана най-ранната фаза на тази култура, до този момент само предполагаема от откривателя ù Д. Берчу. В селището са проучени землянки и наземни постройки. До момента са публикувани част от съдовете[8], открити в една от землянките, кремъчните сечива[9], както и плана на селището и подробни описания на още две землянки[10]. В землянка № 2 са открити два гъбовидни израстъка на дръжки с овално сечение (фиг. 2: 2, 3), а извън комплексите в същото селище – още един подобен (фиг. 2: 1)[11]. Характерни най-вече за късния неолит на Тракия, където се появяват още през периода Караново II–III, след това – през Караново III, III–IV и IV, тези дръжки се срещат на все по-широк ареал в контекста на различни археологически култури на територията на източната и централната част на Балканския полуостров в резултат на "мода", диктувана от обитателите наТракийската низина[12]. Поради дългото им съществуване от една страна и поради факта, че Дуранкулак–Нивата е обитавано през първите два периода на културата Хаманджия, засега е рисковано да се прецизира в кой точно момент следва да се постави появата им в контекста на тази култура, разпространена на територията на днешна Добруджа и прилежащата ù крайбрежна ивица. Във всички случаи обаче дръжките не са от съдове, произведени на място, нито пък в Тракия – омесването на тестото и видът на опостнителите се различават както от хаманджийската традиция, така и от "тракийската". Технологичните показатели говорят в полза на произхода им по-скоро от средата на културата Усое II – макар че подобни се срещат и в културата Хотница, но и там съставът на керамичното тесто е малко по-различен, отколкото на откритите в Дуранкулак–Нивата фрагменти.

През 1974 г. Х. Тодорова прави разкопки в местността Новите лозя, намираща се между Шабленското езеро и Шабленската тузла, на около 300 м източно от езерото. Там тя попада на напълно разрушено селище, обитавано според нея през III и IV фази на културата Хаманджия[13]. Културните пластове са изцяло разрушени от дългогодишната обработка на почвата и от ерозията. Незасегната е само субструкцията на наземните жилища (дупките от коловете, изграждащи конструкцията на стените)[14]. За съжаление, многобройният керамичен материал, събран по време на разкопките и след това съхраняван на базата "Зеленка" (изгоряла по-късно), е загубен. Запазени са само малобройни фрагменти (около 50), селективно подбрани с цел да илюстрират културните влияния и изпратени от разкопвача в РИМ–Добрич[15]. Повечето от тях се отнасят към началото на IV фаза на културите Сава и Хаманджия[16], но има и няколко, които могат да се датират в етапа Усое II (фиг. 2: 4–6; фиг. 3: 1–5). Вероятно това са споменатите от Х. Тодорова "находки, типични за крайния етап на културата Усое (Усое II–Протосава), както и



Фиг. 2. Късноеолитна керамика от селището край Шабленското езеро

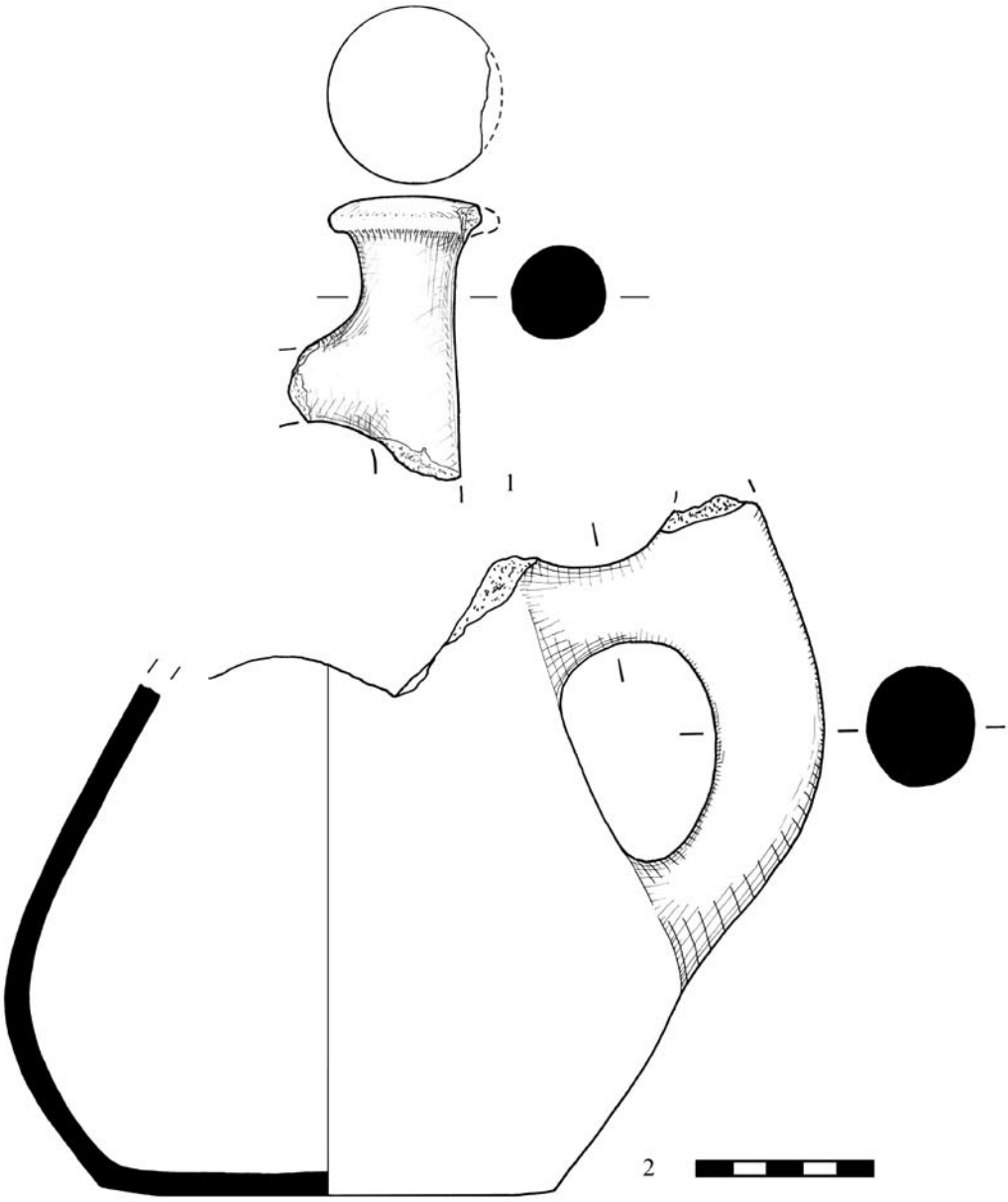


Фиг. 3. Късноеолитна керамика от селището край Шабленското езеро

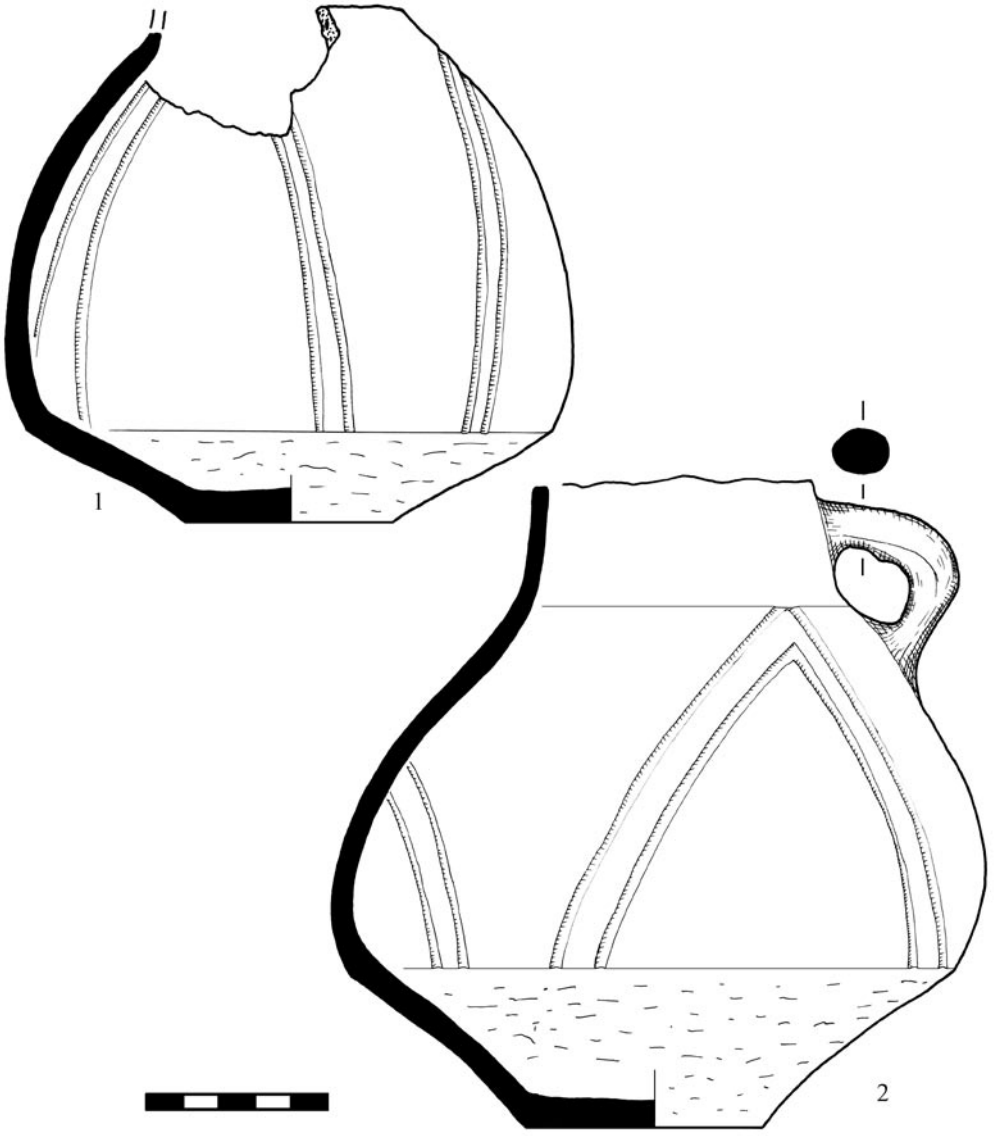
за крайната фаза на културата Калояновец в Тракия"[17]. Дръжките със специфични израстъци (фиг. 2: 6; фиг. 3: 1, 3–5) несъмнено са свидетелство за контактите с Усое II, а блюдата с врязана украса, макар и свързвани с Караново IV[18], се срещат също в керамичния комплекс на Усое II[19], като в случая отново технологичните показатели говорят в полза на произхода на откритите фрагменти от Лонгоза, а не от Тракия – тестото е опостнено с пясък, ангобата (силно оронена, но все пак запазена в някои участъци) е небрежно нанесена и е със специфичен сиво-червен цвят със зеленикаво-жълт оттенък, а изпичането е било извършено при сравнително висока температура[20].

За връзки с Тракия свидетелствуват две находки, запазени в депото на РИМ–Варна. Това е част от дръжка с гъбовиден израстък, открита от А. Маргос при сондажното проучване на селищната могила на територията на солното находище до гр. Провадия[21] (рис. 4: 1) и тръбух на кана с крушовидно тяло и вертикална дръжка с израстък (сега отчупен) с неизвестно местонамиране (рис. 4: 2). Специфичната технология – примес от фин органичен опостнител и стрит варовик; получения след изпичането сив, на места до сиво-черен матов цвят – говори несъмнено за произхода им от ареала на Тракия, като най-близките паралели се откриват в периода Караново III–IV[22]. Тази датировка се потвърди и от резултатите от започнатите през 2005 г. разкопки на селищната могила при Провадия, чийто най-долни хоризонти бяха отнесени към това време[23].

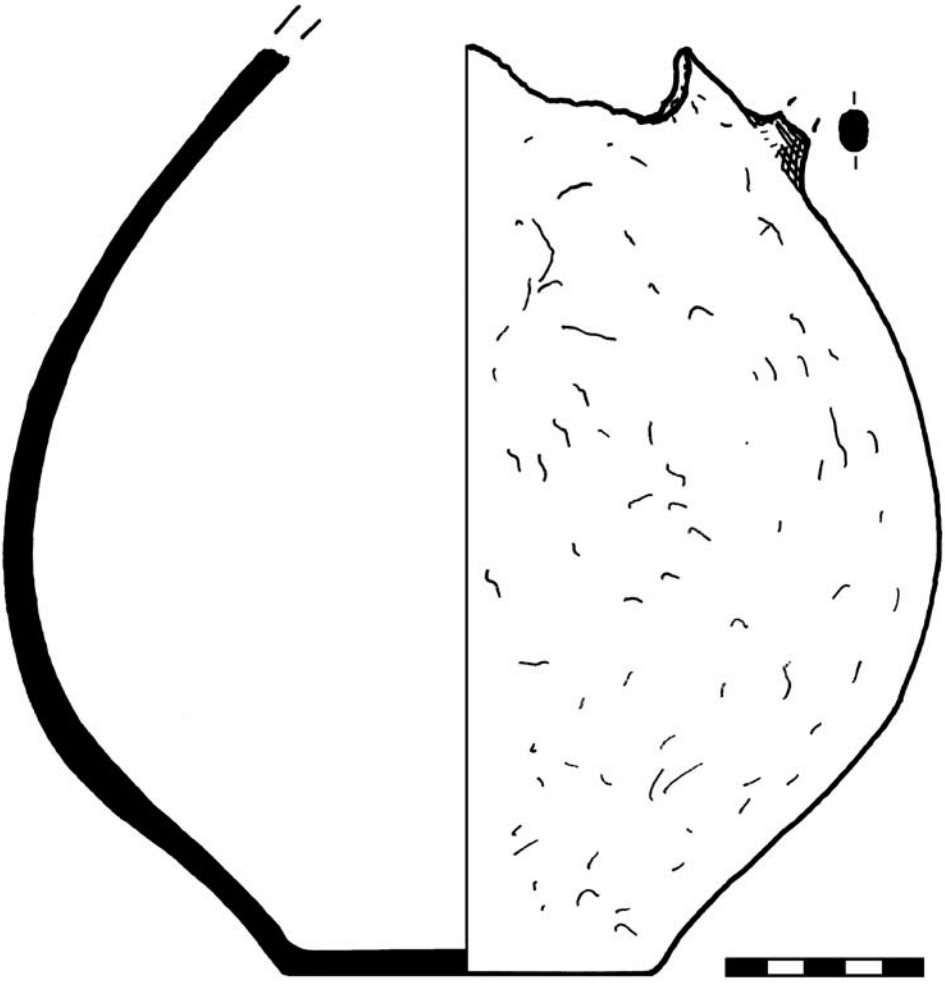
През 1924 г., при почистването на кладенец край с. Кюприя (дн. гр. Приморско) работници попадат на "конусообразни глинени съдове, други в форма на панички, каменен чук, каменно длето, предмети от кости и др."[24]. В. Миков първоначално правилно ги определя като неолитни, но по-късно датира предметите в бронзовата епоха[25] в резултат от т. нар. "синдром Веселиново", възникнал в резултат на смесването на неолитни и раннобронзови материали[26] в края на 20-те–средата на 30-ге години на XX в. М. Лазаров уточнява, че те са открити в м. Стамопло[27] на дълбочина 9 м и вероятно са остатъци от селище, което, съгласно по-късната датировка на В. Миков също поставя в бронзовата епоха[28]. От тази находка във фонда на РИМ–Варна днес са запазени три глинени съда и пет сечива от кост и от рог[29]. Особен интерес представляват съдовете. Два са почти еднакви (рис. 5: 1, 2), направени са от добре омесена глина, опостнена с фин пясък. Изпечени са в редукчна среда и са получили наситен черен цвят. На единият от тях липсва устийната част заедно с дръжката. Шийката на втория е излъскана до блясък, като очевидно е била по-висока, но още в древността е била отрязана, а получения по този начин неравен устиен ръб – загладен и заоблен. Търбухът е крушовиден, с подчертана острота на прелома, а стените на долната част са конкавни. Повърхността на плещите е леко огрубена, а върху нея с плитки широки жлебове са нанесени три триъгълни мотива. Долната част на съда е огрубена в малко по-значителна степен. Съдът е снабден с малка дръжка с овално сечение, прикрепена към шийката и горната част на плещите. Тя също е излъскана.



Фиг. 4. Късноеолитна керамика от фонда на РИМ–Варна:
1 – от селищната могила край Провадия; 2 – неизвестно местонамиране



Фиг. 5. Съдове от находката при Приморско



Фиг. 6. Съд от находката при Приморско

Тези съдове не намират паралели в разпространените в днешните български земи къснонеолитни култури. Подобен съд (макар и без дръжка) е открит в ниво 3 при разкопките на пещерата Яръмбургаз, но доста по-силна е приликата с търбуха на друг (без стратиграфска позиция), отнесен от разкопвача към ниво 2[30]. Аналогични, само че с по-висока шийка, украсени със същия мотив, но нанесен чрез издраскване, са открити при разкопките на селищната могила Топтепе на брега на Мраморно море в Източна Тракия и се датират във фазата Топтепе II–IV[31]. Тази датировка е потвърдена по-късно при разкопките на селищната могила Ашаъ Пънар край Кърклареli, където същите съдове са открити в пластове 2 и 3[32]. В публикацията те са определени като тип Топтепе[33]. Въпреки известните трудности при напасването на къснонеолитните селища от територията на съвременна Турция с Карановската хронологическа система[34], отбелязаните хоризонти се синхронизират с късното Караново IV[35]. Това са първите находки от този тип, открити на територията на България, свидетелстващи за връзки с района на Източна Тракия през късния неолит. Появата им не бива да се смята за учудваща – все пак разстоянието по права линия от Приморско до Кърклареli е по-малко от 100 км.

Шийката на третия съд от находката край Приморско също е отчупена заедно с дръжката. Това значително затруднява намирането на добри паралели, макар че е ясно, че те отново трябва да се търсят извън днешните български земи, където подобни съдове не се срещат. Технологичните особености – опостняване с фин пясък, светъл червенокафяв цвят, тънки стени, изпичане при висока температура до получаване на почти звънък чирепи плътен лом, а най-вече специфичното третиране на повърхността – финото ù огрубяване докато съдът е бил още влажен – говорят за анатолийския му произход, но точната му датировка поради липсата на важните сигникативни части е невъзможно да се прецизира[36].

Така очертаните паралели на описаните находки говорят за интензивни контакти по линията север–юг в района на днешното Черноморие през късния неолит. Такова мнение вече бе изказвано в литературата[37] и сега, благодарение на тези, макар и откъслечни сведения, то намира своето потвърждение. Разбира се, контактите с културите, разпространени на запад от Черноморското крайбрежие в никакъв случай не са прекъсвали. Връзките между култура Боян и култура Хаманджия са коментирани многократно[38]. При разкопките на селището Копривец, Русенско, в I хоризонт на сондаж А е открит къснонеолитен съд, характерен за културата Хаманджия[39], отнесен от разкопвача към ранния неолит[40]. До селищната могила Козарева могила са открити керамични фрагменти, които се отнасят към Караново III–IV, вероятно от разрушено селище[41]. Всичките тези данни са ярко свидетелство за междукултурните контакти в източната половина на Балканския полуостров през късния неолит – процес, от който Черноморския район в никакъв случай не е бил изолиран[42]. Надяваме се, че повишения интерес към тази проблематика, появил се в последните години и довел до започването на

по-интензивни археологически изследвания на региона[43], ще доведе до изясняване на редица въпроси, свързани с бита на населението през втората половина на VI хил. пр.Хр.и техните взаимоотношения.

[1] **V. Nikolov**. Mittelneolitische Keramik aus Karanovo: typologische Charakteristik. – Balcanica, 23, 1992, S. 121–131; **V. Nikolov**. Spätneolitische Siedlungen in Thrakien: das Problem Karanovo IV. – SASTUMA, 2, 1993, S. 157–190; **В. Николов**. Проучвания върху неолитната керамика в Тракия. Керамичните комплекси Караново II-III, III и III-IV в контекста на Северозападна Анатолия и Югоизточна Европа. София, 1998; **V. Nikolov**. Neolithische Keramikkomplexe in Thrakien. – In: **S. Hiller, V. Nikolov** (Hrsg.). Karanovo, Bd. III. Beiträge zum Neolithikum in Südosteuropa. Wien, 2000, S. 11–19; **V. Bozhilov**. Keramikkomplex aus dem Horizont II-I (Schichtenfolge Karanovo IV). – In: **S. Hiller, V. Nikolov** (Hrsg.). Karanovo, Bd. II. Die Ausgrabungen in O19. Saltzburg–Sofia, 2002, S. 43–68; **J. Lichardus, I. K. Iliev, Ch. J. Christov**. Die Karanovo I–IV Periode an der unteren Tundža und ihre chronologische Stellung zu den benachbarten Gebeiten. – In: **M. Lichardus-Itten, J. Lichardus, V. Nikolov** (Hrsg.). Beiträge zu jungsteinzeitlichen Forschungen in Bulgarien (=SBA, 74). Bonn, 2002, S. 325–410; **Д. Карастоянова**. Среднонеолитен керамичен комплекс Караново I-III от тел Казанлък. – Във: **В. Николов, К. Бъчваров, П. Калчев** (ред.). Праисторическа Тракия. София, 2004, с. 99–104.

[2] **П. Станев**. Технология, типология, генезис и синхронизация на керамиката от терасното селище Качица – Велико Търново. – ИНМВТ, XI, 1996, с. 41–86; **В. Попов**. Периодизация и хронология на неолитните и халколитните култури от поречието на р. Русенски Лом. Русе, 1996; **Н. Еленски**. Материали от прехода от късния неолит към ранния енеолит, произхождащи от землището на с. Хотница, Великотърновско. – ИНМВТ, XIII, 1998, с. 53–65; **П. Станев**. Самоводене. Неолитна селищна могила. Велико Търново, 2002; **R. Krauß**. Die prähistorische Besiedlung an Unterlauf der Jantra vor dem Hintergrund der Kulturgeschichte Nordbulgariens (= PAS, 20). Rahden/Westf., 2006.

[3] **Х. Тодорова**. Новая культура среднего неолита в Северо-Восточной Болгарии. – СА, 4, 1973, с. 16–31; **Х. Тодорова**. Ново находище от прехода между неолита и енеолита в Североизточна България. – Археология, 1, 1973, с. 59–65; **Х. Тодорова, Д. Златарски**. Разсопки на неолитното селище "Усоето" при с. Аспарухово, Варненско. – АОР през 1975 г. Смолян, 1976, с. 17.

[4] **Т. Димов.** Землянка от неолитното селище при село Дуранкулак, Толбухински окръг. – Археология, 1, 1982, с. 33–48**; Т. Димов.** Приноси към проучванията на новокаменната епоха в Южна Добруджа. – Terra antiqua Balcanica, III, 1988, с. 20–25; **Т. Димов.** Топография, стратиграфия и архитектура на селищата от праисторическата култура Хаманджия в Добруджа. – Във: **В. Славчев** (ред.). Изследвания в чест на ст. н. с. I ст. д.и.н. Хенриета Тодорова (= Сборник Добруджа, 21). Варна, 2004, с. 123–144.

[5] **H. Todorova** (Hrsg.). Durankulak, Bd. II. Die Prähistorischen Gräberfelder von Durankulak. Berlin–Sofia, 2002.

[6] Следва да се отбележи, че тази констатация засяга частично случая с разкопките на селището Усое. За него разполагаме с подробна публикация на кремъчния материал (**I. J. Gatsov**. Le site néolithique d'Oussoe, department de Varna. Répartition du materiel en silex par tranchées de foundation. Caractéristiques et comparaisons des artifacts. – StP, 10, 1990, p. 91–102). Откритата антропоморфна пластика също е напълно обработена, публикувана и анализирана – вж. **I. Vajsov**. La sculpture anthropomorphe du site néolithique d'Oussoé près du village d'Asparoukhovo, department de Varna. – StP, 10, 1990, p. 103–141 – като в тази статия добре са очертани културните връзки на обитателите на селището (с. 140–141).

[7] **Т. Димов.** Землянка от неолитното...

[8] **Т. Димов.** Землянка от неолитното...

[9] **Н. Н. Скакун.** Результаты исследования производственного инвентаря неолитического поселения Усое I (Болгария). – В: Экспериментально-трасологические исследования в археологии. Санкт-Петербург, 1994, с. 85–118.

[10] **Т. Димов.** Приноси към проучванията...; **Т. Димов.** Топография, стратиграфия...

[11] Благодаря на Х. Тодорова и на Т. Димов за възможността да се запозная и да публикувам тези материали. Те са описани от Т. Димов като "кръгли пъпковидни дръжки тип Усое I" – **Т. Димов**. Културата Хаманджия в Добруджа. – Сборник Добруджа, 9, 1992, с. 27.

[12] **В. Николов**. Проучвания върху неолитната..., с. 219–221.

[13] Макар че в една от публикациите си Х. Тодорова да пише за две селища – Шабла I и Шабла II – вж. **Х. Тодорова**. Добруджа през праисторическата епоха. – В: **А. Фол, С. Димитров** (ред.). История на Добруджа, т. I. София, 1984, с. 39–40 – в полевата документация, съхраняваща се в РИМ–Добрич неколкократно е отбелязано, че в хода на проучването е изяснено, че първоначално смятаните за два различни обекта се оказват части от едно и също селище (вж. и **Т. Димов**. Културата Хаманджия..., с. 20). Пишейки за III фаза на културата Хаманджия, авторката изрично подчертава, че номерът на тази фаза е по периодизацията на Д. Берчу (пак там). В полевата документация датировката е късен неолит и ранен и среден халколит.

[14] Вж. **Т. Димов**. Културата Хаманджия..., с. 23.

[15] Изказвам благодарност на Х. Тодорова и на Т. Димов за достъпа до материалите и полевата документация. С нея е запазено и съпровождащото кашона с находки писмо от Х. Тодорова до тогавашния археолог на музея Л. Бобчева.

[16] Вж. **V. Slavchev**. Monuments of the final phase of cultures Hamangia and Sava on the territory of Bulgaria. – Pontica, XXXVII–XXXVIII, 2004–2005, p. 13; 18, fig. 2.

[17] **Х. Тодорова**. Добруджа през..., с. 39.

[18] Вж. напр. **М. Димитров**. Нови находки от неолитната култура Караново IV в Старозагорско. – ИБМ, I, 1969, с. 25, обр. 3: л–ц); **М. Кынчев, Т. Кынчева**. Позненеолитическое поселение "Хлебозавод" у города Нова Загора. – StP, 9, 1988, т. II: 6, 7; **V. Bozhilov**. Keramikkomplex aus dem…, S. 55, Taf. 3: 2–4, 12; S. 56, Taf. 4: 4–5.

[19] Непубликувани материали, съхранявани във фонда на ИМ–Дългопол. Благодаря на Х. Тодорова, Р. Казакова и Л. Лазаров за възможността да се запозная с керамиката.

[20] Ср. с описанието на керамиката на финалната фаза на Усое II в **Х. Тодорова, И. Вайсов**. Новокаменната епоха в България. София, 1993, с. 145 – "Като опостнители вече почти не се използват органични примеси. Вместо тях... се поставя... фин пясък. Това позволява производството на тънкостенни и здрави съдове, но пречи на спойката с шлика, който... е опадал. Сред керамичните съдове има конични блюда... Канелюрата отстъпва, за да направи място на набодения орнамент, на техниката фурхенщих и на фино врязаните мотиви. Основният цвят на керамиката е светлосив, но има и съдове червено и петнисто черно-червено или червено-сиво опалване."

[21] **А. Маргос**. Праисторическа селищна могила при Солниците край Провадия. – в. Провадийски глас, 15. 07. 1964 г.; **А. Маргос**. Праисторическата селищна могила край Провадия. – в. Народно дело, 10. 01. 1978 г.

[22] **В. Николов**. Проучвания върху..., т. 20: 1, 3. Дръжки като въпросната се срещат и в предшестващия (Караново III) – вж. **В. Николов**. Проучвания върху..., т. 7: 22–26, и в следващия (Караново IV) периоди – вж. **V. Bozhilov**. Keramikkomplex aus..., S. 53, T. 1: 21.

[23] **В. Николов**. Първи свидетелства за най-ранното солодобиване в Европа. – Археология, 1–4, 2005, с. 112; **В. Николов, В. Петрова, Е. Анастасова**. Сондажни разкопки на тел Провадия–Солницата. – АОР през 2005 г. София, 2006, с. 48; **В. Николов, В. Петрова, Н. Христов, Е. Анастасова, П. Лещаков**. Археологически проучвания на солодобивен център Провадия–Солницата. – АОР през 2006 г. София, 2007, с. 48, 51.

[24] **В. Миков**. Принос към неолитичната култура у нас. – ИБАИ, III, 1925, с. 236.

[25] **В. Миков.** Предисторически селища и находки в България (=ИНАМ, 30; =МАКБ, VII). София, 1933, с. 107.

[26] За повече подробности относно "синдрома Веселиново" вж. **R. Katinčarov**. Etat des recharges sur l'âge du bronze en Bulgarie du Sud-Est. – ИАИ, 36, 1981, p. 120, 135–136, 138; **В. Николов**. Проучвания върху..., с. 10–12.

[27] У М. Лазаров е написано "Стамоплу". Правилното четене и произнасяне е "Стамопло". Местността се намира на север от Приморско, между града и резиденция "Перла" – вж. **Т. Трифонов**. Седемстотин наименования от Българското Черноморие. Варна, 2003, с. 88, с. 128, табл. XXII.

[28] **М. Лазаров**. Потъналата флотилия. Варна, 1975, с. 129.

[29] В инвентарната книга на музея от К. Шкорпил е записано "под. Мор. Сговоръ". Очевидно става въпрос за обществената организация Български народен морски сговор, придобила значителна популярност през 20-те–средата на 40-те години на XX в. Под нейно покровителство на 20 май 1923 г. с тържествена церемония е открита експозицията на Морския музей във Варненската девическа гимназия (http://www.md.government.bg/nvim/_bg/vmm.html), където резидира и Варненското археологическо дружество, чийто наследник е Регионалния исторически музей–Варна.

[30] **M. Özdoğan, Y. Miyake, N. Özbaşaran**. A interim report on excavations at Yarımburgaz and Toptepe in Eastern Thrace. – Anatolica, XVII, 1991, p. 104, fig. 8:3, p. 108, fig. 12: 3; **M. Özdoğan**. Anadolu'dan Avrupa'ya açılan kapı: Trakya. Gerçekleşen çalışmalar ve beklentiler – Arkeoloji ve Sanat, 90, 1999, s. 12, ç.4.

[31] **M. Özdoğan, Y. Miyake, N. Özbaşaran**. A interim report on…, p. 119, fig. 22: 8; **M. Özdoğan**. Anadolu'dan Avrupa'ya…, s. 16, ç. 8: 8; ç. 9.

[32] **H. Parzinger**. Die mittel- und spätneolitische Keramik aus Aşağı Pınar, Grabungen 1993–1998. – In: **H. Parzinger, H. Schwarzberg.** Aşağı Pınar II. Die mittel- und spätneolitische Keramik (=AE, 18; =STMR, 2). Mainz, 2005, T. 1: 1–2, 4–6; T. 2: 1; T. 3: 2, 5–7; T. 38: 1, 3.

[33] **H. Parzinger**. Die mittel- und…, S. 77, 85.

[34] Вж. **M. Özdoğan, Y. Miyake, N. Özbaşaran**. A interim report on…, p. 83–85; **M. Özdoğan**. Northwestern Turkey: Neolithic cultures between the Balkans and Anatolia. – In: **M. Özdoğan, N. Başgelen** (eds.). Neolithic in Turkey. Arkeoloji ve Sanat Yayınları. İstanbul, 1999, p. 220–221.

[35] **H. Parzinger**. Die mittel- und…, S. 66–67. Това синхронизиране във финалната публикация на Ашаъ Пънар е малко по-различно от по-ранното мнение на разкопвачите в предварителните съобщения, където те синхронизират хоризонт 3 с първата половина на Караново IV (вж. **H. Parzinger, M. Özdoğan**. Die Ausgrabungen in Kırklareli (Türkisch-Thrakien) und ihre Bedeutung für Kulturbeziehungen zwischen Anatolien und dem Balkan von Neolithikum bis Frühbronzezeit. – BRGK, 76, 1995, S. 5–29).

[36] Благодаря за консултацията на проф. Ю. Билги, посетил РИМ–Варна през есента на 2005 г., който също смята, че съдът е бил направен в анатолийска среда.

[37] **Х. Тодорова**. Добруджа през..., с. 33–34; **В. Николов**. Проучвания върху..., с. 220.

[38] За подробен анализ и цитирана литература вж. **P. Haşotti**. Epoca neolitică în Dobrogea, Constanţa, 1997, p. 19–22, 63–68 и най-вече **M. Neagu**. Neoliticul mijlociu la Dunărea de Jos (=CCDJ, XX). Călăraşi, 2003, p. 64–65, 144–152.

[39] **В. Попов**. Периодизация и хронология..., с. 160, обр. 32: 2.1, като съдът (съгласно с хоризонта, в който е открит) е датиран в ранния неолит (пак там, с. 54), макар че очевидно авторът се колебае в хронологическата позиция на културното явление, към което принадлежи селището (в хронологическата таблица в края на монографията е отбелязано, че културата и съответно хоризонтът застъпват и началото на късния неолит – пак там, с. 301, обр. 199). В. Николов датира въпросния съд в Хаманджия I (**В. Николов**. Проучвания върху..., с. 208), но погрешно смята, че търбухът му е украсен с врязани линии. Р. Краус публикува по-ясна рисунка на същия съд, от която се вижда, че украсата всъщност е от зигзаговидни канелюри (**R. Krauß**. Die prähistorische Besiedlung..., T. 8: 1), но при това го датира във фазата Хаманджия III (**R. Krauß**. Die prähistorische Besiedlung..., S. 186). Смятам за правилна датировката на В. Николов, но неговата синхронизация на Хаманджия I с Хотница II и съответно късния етап на Караново IV (**В. Николов**. Проучвания върху..., с. 207, 211–212) буди редица възражения. Синхронизацията на късния неолит на Североизточна България и Тракия е предмет на редица дискусии и е твърде обемна тема за настоящото съобщение. Във всички случаи, далеч по-вероятно изглежда въпросният съд да произхожда от хоризонта, в който е намерен (I-ви), отколкото, както предполага В. Николов, да е попаднал в него от вкопаване от най-късния, III хоризонт. Смятам

синхронността на Хаманджия I с културното явление Болентиняну за сигурно установена, като обаче напълно приемам установената синхронност на последната фаза на култура Дудещ с началото на Болентиняну, доказана при съпоставянето на материалите от Черника и Градищя Улмилор (вж. материалите и коментара в цитираната монография на М. Нягу). Това означава, че синхронизирането на Болентиняну (и съответно Хаманджия I) с началото на Караново IV (освен мнението на В. Николов вж. и **М. Кынчев, Т. Кынчева**. Позненеолитическое поселение..., с. 83) трябва да се преосмисли, като далеч по-вероятно е хронологическото съответствие с Караново III–IV. Във всички случаи синхронизирането на споменатите късноеолитни явления очевидно ще е въпрос на по-нататъшни дискусии.

[40] Пак там,

[41] Информация на П. Георгиева, провеждала теренни обхождания на района, резултатите от които бяха докладвани през октомври 2007 г. на конференцията в Благоевград, посветена на Археологическата карта на България.

[42] Тук не споменаваме съда, открит между Каблешково и с. Лъка, Бургаско, съхраняван днес в Бургаския Регионален исторически музей (вж. **Д. Берчу.** Неолитната култура Хаманджия в България. – Археология, 1, 1963, с. 5–7), отнесен още от Д. Берчу при публикуването му към раннохалколитната, III фаза на култура Хаманджия (Чамурлия де Жос). Смятаме, че той действително е изработен в среда със силни хаманджийски влияния, макар че П. Хашоти се съмнява в хаманджийския му произход (вж. **P. Haşotti**. Noi date privind difuziunea comunităţilor culturii Hamangia. – Pontica XVII, p. 27–29).

[43] Споменатото проучване на селищната могила до Провадия и изследването на късноеолитния обект до Созопол от П. Лещаков, докладван на отчетната сесия за разкопките през 2007 г.

SOME REMARKS ON CULTURAL RELATIONS IN THE AREA OF TODAY'S BULGARIAN BLACK SEA COAST DURING THE LATE NEOLITHIC

VLADIMIR SLAVCHEV (VARNA)

For a long time, the Late Neolithic was one of the most poorly studied prehistoric periods in Bulgaria. In the last decade, this lack was overcome for Thrace and Northeastern Bulgaria, but the period remains weakly known for the Bulgarian Black sea littoral. In the article, some pottery is presented from the Durankulak–Nivata settlement (with parallels in the Usoe II culture), Shabla settlement (with parallels in Usoe II culture), from the tell Provadia–Solnitsata (with parallels in Karanovo III–IV culture), chance finds from the Varna region (with parallels in Karanovo III–IV culture), and a hoard from near the town of Primorsko (with parallels in Yarımburgaz 2, Toptepe II–IV and Aşağı Pınar 2 and 3). This material demonstrates intensive inter-cultural contacts North–South and vice versa along the western Black sea coast, none of which excludes East–West networks inland and back.

The author's goal is to focus attention on the important new finds of this period and to the Late Neolithic communities' relationships with other groups in the Western Black sea coastal zone.

NEOLITHIC BODIES BEYOND THE GRAVE: CORPOREALITIES OF BEING

DOUGLASS W. BAILEY (STANFORD)

Introduction

In the study of the southeast European Neolithic[1], one of the most exciting developments of the past half century was the discovery, excavation and interpretation of the Varna necropolis by Ivan Ivanov. Much has been written (and continues to be written) about the site and about how the disproportionate distribution of often extraordinary grave-goods affects our understanding of life in the region during the fifth millennium BC[2]. While the larger necropolis at Durankulak has recently been published in greater detail[3], it was Varna that had the most substantial impact on the reconstruction of social structure and social organisation and which supplemented the work that was being carried out by Ilka Angelova, Totio Ivanov, Ana Raduncheva, Henrieta Todorova and others on the inland tell settlements and smaller cemeteries[4] at Golyamo Delčevo[5], Ovčarovo[6], Polyantisa[7], Radingrad[8], Tărgovište[9], and Vinitsa[10]. Without devaluing any of the work that has been based on the excavations at Varna (or Durankulak for that matter[11]), the present collection of chapters provides an opportunity for looking beyond the material brilliance presented by the fifth millennium BC cemeteries.

In this chapter I argue that we can develop a robust archaeology of the Neolithic in southeastern Europe only if we place the rituals and ceremonies represented at sites such as Varna into a fuller understanding of the critical roles that the human body played within prehistoric (and modern) perceptions of identity and social reality. If we are going to think about identity and the body in the Neolithic, then we need to do substantially more than look at skeletons and grave-goods in cemeteries. One priority is to focus on contemporary, Neolithic, manifestations of the human form. We need to ask how peoples' engagements with these manifestations tell us about how people perceived themselves as individuals or as members of groups and about how individuals thought about others. In this chapter, I will focus on the major manifestation of the Neolithic body that survives in material form: anthropomorphic figurines.[12] To begin, I offer some insight into the complexity of the human body as a social and political entity.

The body

When we start to understand the human body as a political phenomenon that possesses huge significance as a cultural, social and political object, we quickly realize that the body is one of the most important sites for the negotiation of power politics among

individuals and groups. There is now a vast literature on the anthropology and archaeology of the body[13], and while it is not necessary to synthesis all of these works here, it is useful if we think about how the body is a constructed entity (i.e., the fact that it is not an essential, predetermined and simple concept or item) and if we consider how the body and its manifestations often play powerful roles in the social dramas that establish human identities.

Much of the recent research into the body that has disrupted traditional perceptions of the body in archaeology and anthropology derives from the writing of Moira Gatens[14], Judith Butler[15], Elizabeth Grosz[16], and from other feminist authors. These authors share the critical conclusion that bodies are political, social and cultural objects *par excellence*; they are not natural, passive, objects which are simply overlaid with cultural inscriptions. Bodies are neither reflections of static, individual and social relationships, nor are they metaphors for social and political structures. Indeed there is no single, stable, unified concept or definition of the body, nor can there be any single body-image; the body is always precarious and always requires construction, maintenance and renewal[17]. Immediately, there are important consequences for how we understand not only the Neolithic in southeastern Europe, but also for the ways in which we understand and attempt to interpret the bodies that occupy the burials at sites such as Varna: the simple reading of social structure, or individual identities from grave contents is no longer acceptable[18].

Human bodies (i.e., corporeal entities) are fluid things that have no original, essential definition or shape. At any one moment, different, contemporary communities and individuals have different ways of seeing, valuing and thinking about the corporeal. At many different moments, the same community or individual can have varying conceptions of the body. In this sense, regardless of whether they are laid to rest in a grave or represented in a clay figurine, bodies are specific rather than universal; their meanings lie in local understandings, truths, lies and fictions. There are specific historical contexts to each perception of the body. Thus, corporeality (perhaps a better word to use than 'body') is not an abstract category that can be defined or tied-down; rather it refers to the ways in which bodies are materialized[19].

As bodies are incomplete, indeterminate, fluid and amorphous, they require ordering and management. Body management derives from relations among individuals within (and from without) a community[20]. Bodies are constructed[21]. Bodies' meanings and functions are open to transformations through processes of contestation and re-signification[22]; bodies are constantly altering[23]. For Butler, the body is part of deliberate acts, or performances (such as cremation or inhumation), that can deceive people, leaving them (and the performer) uncertain about what is real and what is not. In fact, performativity questions whether or not there is a distinction between a real body and one that is a non-real, or performed body or self. Bodies are performative and as such they are always in the process of becoming.

Furthermore, bodies are political and thus in there manipulations (after death and in representation) there exist body-politics: power relations that surround the corporeal body and its representations, the inescapable relationship between embodiment, power and knowledge[24]. The focal point for struggles over shares of power is the definition and shaping of the body[25]. As political entities, bodies become the signifying practices within fields of hierarchy and of compulsory community organization and structure[26].

The represented body: an archaeology of dolls. Critical for our attempts to understand objects such as anthropomorphic figurines (but patterns of body inhumation as well) is the recognition that visual representations of the body are never politically innocent nor are they inherently stable. When the human body is made into an image, an object even, then the body takes up a position in the domain of material relations. The discussion so far has been rather lofty and theoretical and has not moved us any closer to understanding figurines, let along, cemeteries such as Varna or Durankulak. One way to focus the argument is to look at a modern manifestation of ways in which the body is represented, in this case, in dolls, both those played with by children and those used by adult artists. The benefit of thinking about modern material culture, in this way, is not to suggest that a functional analogy can be drawn between twentieth century objects and fifth millennium BC artefacts and activities; clearly there is no support for such a suggestion. The value of looking at modern dolls is that, by doing so, we begin to open our minds to consider dimensions for understanding past human behaviour which we might not otherwise have encountered.

Barbie-Dolls. For many women growing up in the twentieth century western world, dolls encouraged appropriate behaviour and appearance: innocent, dependent, contentment, silent, mass-produced, and compliant[27]. The epitome of this tradition is the Barbie-Doll, a phenomenon of the toy world and a subject of considerable intellectual debate. Barbie was based on the Bild Lilli doll of post-war Germany whose appearance has been described as a three dimensional pin-up, a prostitute or, most evocatively, an actress between performances[28]. Barbie was Lilli recast as a wholesome woman; the epitome of the middle class All American girl. Over the years of her production, Barbie was re-presented in a sensational series of outfits and occupations. She was fashion-model, sports-woman, office secretary, doctor, singer, nurse, astronaut, *inter alia*. The frequent re-modelling of Barbie was a successful marketing mechanism, stimulating mothers, fathers and daughters to purchase new sets of Barbie cloths and paraphernalia, as well as new Barbie-Dolls themselves as they appeared with seasonal variations or annual developments in new and improved doll technology.

Defenders of Barbie praise her as a much needed role-model for girls. They point to the huge range of occupations and abilities that were projected as acceptable for women to pursue and possess. This is no small feat for a doll which appeared before the advent of popular feminism (the first Barbie went on the market in the early 1950s) and which has survived the post-feminist critique. Even the 1961 appearance of Ken, as a required

male consort, did little to reduce Barbie's independence. From the start, Ken's position was problematic: he could never marry Barbie, and thus they can never have children (Ken has an impotent "bulge" in the place of any reproductive equipment). Indeed, most often Ken is found dressed in Barbie's fashionable outfits[29]. For many critics and commentators, Barbie represents a strong, modern, women, not tied down by marriage, domesticity or children, nor even restricted to the monotony of a single job for life: the perfect role model for the young women of the world.

On the other hand, there are many critics of Barbie who view her as harmful to young women's' perceptions of reality. Some suggest that her body proposes an unattainable physical ideal which girls grow up wanting to emulate: Barbie is blemish-free, does not age, has a disproportionately narrow waist and the equivalent of a "perfect", 38-inch bust. Indeed, one American woman, Cindy Jackson, spent $55,000 on over 20 operations (face-lifts, breast implants, liposuction) so that she could become a living Barbie[30]. Barbie's own body has not remained unaltered; the designers and engineers at the Mattel Company have continued to invent new internal mechanisms that extend the doll's ability to bend and twist in increasingly complex ways and carry-out new and different activities (e.g., the ability to tilt at the waist or the neck, to play tennis and volleyball)[31]. Other critics argue that in her multiple outfits and many vocations, Barbie represents someone with serious multiple-personality disorders. Indeed her personalities are invented; they are the things of fantasy. The most common criticism attacks Barbie as a stereotype, a prototype of bimbo-ism, a woman-made-object: purchasable, undressable, controllable, disposable.

Engaging as these debates are, for us, the relevance of Barbie does not depend on whether she is an empowering or a harmful influence on little girls. Barbie is relevant to our desire to better understand Neolithic manifestations of the human body such as figurines (but also human burial), because she documents the emotive power that an anthropomorph can have in influencing our opinions. Even more important, Barbie provides an excellent example of an anthropomorph that was created in one context for one purpose (as a toy for girls), and which has been understood in many different, at times mutually exclusive, ways by many different groups of people. There is a wonderful disjunction among the intention of the doll's creation, its uses and its meanings to people.

Artists and dolls. Because of the important positions that they occupy in our childhoods, dolls and other representations of the human body (life-size as well as miniature) possess implicit significances for us. Because dolls communicate social information and reproduce cultural roles, modern artists are particularly drawn to using them in their work[32]. Frequently, artists manipulate these deeper meanings by using dolls and other anthropomorphs to question our understandings of identity, of what it means to be human, and of what it means to be a man or a woman.

Artists use dolls to inspire spectator-dialogue and viewer-contemplation about the ways in which self and identity are constructed. They attempt this by projecting and manipulating human imagery to illuminate differentiation among individuals. Anthropomorphs become a physical means of defining the personal narratives that make up the individual self. Not only can dolls play the role of Another, through which individuals become conscious of his or her own self or person[33], but dolls can also act as silent listeners[34]. In a more fantastic sense that takes advantage of the powers inherent in dolls as miniatures, artists use dolls as metaphors for the universal concern that people have about personal identity[35]. The doll-as-art becomes a medium through which both the exhibit's viewer and the artist can explore their own dimensions of identity[36].

Representation and identity. Dolls, both those of children and those of adults, are powerful tools that function within the development and understanding of people's conceptions of self and of personal identity[37]. Dolls are important parts of children's and adults' development of personal identities. For children, dolls help fashion identities by providing reflections of the self, by providing an Other against whom identity is constructed, and by creating test-zones in which children practice caring and nurturing (as well, of course, as hating and harming) and other activities of real life but without the immediate consequences of flesh and blood. Obviously, the routine of a child's doll-play creates deeply ingrained perceptions of appropriate behaviour towards others which will, eventually, enter the real life of the child. The important point is that dolls provide a range of different components that a child uses to build-up ideas of who she is, who others are, and how she should behave towards others. Furthermore, objects such as dolls allow, encourage even, children to play out narratives of the self and the other. By manipulating and orchestrating ensembles of dolls a child practises and experiments in rudimentary social scenes[38].

The representation of the body in visual culture (such as a doll) and through visual events (such as inhumation) is central to society's construction not only of norms of identity but of power relationships in general. Visual culture is a powerful means for proposing alternative realities, because it can exploit the processes of representation to replace the real with the fictional. In *The Society of the Spectacle*, Guy Debord suggests that people are dazzled by the spectacular and end up passively preferring the representation to the real thing[39]. Debord's spectacle is more than the mere collection of images; it is the way that images mediate between people[40]. In the spectacle, appearances predominate; in fact, human social life is nothing but appearances[41]. Following Feuerbach, G. Debord argues that people give primacy to the sign as opposed to the thing signified, to the copy rather than the original, to the representation over the real, to the appearance and not the essence: illusion becomes sacred[42]. In the society of the spectacle, people cannot directly perceive their world because it is only visible through particular visual mediations[43]. Furthermore, the spectacle congeals all of those things which, in actual human activity, exist in a fluid state[44]. Sets of images replace the real world and

are superior to the real thing; they impose themselves as the appropriate perception of reality[45]. The spectacle is the ideological form of pictorial power[46].

Similar to the spectacular is the simulacrum, a copy that has no original and thus no relation to reality[47]. For J. Baudrillard, it is possible (and common) to create a model of a real thing that is, paradoxically, without any reality; it is hyper-real. Importantly, J. Baudrillard suggests that there are four phases of the image: one that reflects a basic reality; one that masks or perverts a basic reality; one that masks the absence of a basic reality; and one that bears no relation to any reality. In this final phase, the image is its own pure simulacrum. G. Debord's specular society and J. Baudillard's simulacrum bring us into the world of the virtual where images or spaces that are not real appear to be so[48]. For Nicholas Mirzoeff's a virtual space is the one that comes into being when he is on the phone: it is a place that is neither exactly where he is sitting nor is it where the other person on the phone is sitting. Rather, it is the space of the conversation, the virtual space; it is somewhere in between. N. Mirzoeff provides other examples of these virtual worlds, including the Neoclassical creation of the space of a virtual classical antiquity, the stereoscopic images of the nineteenth century (and their magical creation of a three-dimensional image), the dioramas of the eighteenth and nineteenth centuries (in which illuminated translucent water-colours created three-dimensional effects), the television and the cinema (and the presentation of deaths, explosions and stunts), and most recently, computer-generated virtual worlds which cannot be known in any other form outside of the computer screen. In all of these, the actual reality of the world around us is transformed into poly-dimensional interior worlds of the spectator[49]. By playing on the uneasy paradox that exists between the real and the representation, the virtual provokes imbalance and instability.

Identity creation. Though not the only tool for creating and manipulating identity, the human body is one of the most powerful. The body's participation in acts, gestures, and performances constructs identity. The repetition of performances builds identities which become, unintentionally even, community-wide norms[50]. Concealed within such reiterations are the original, perhaps tenuous, proposals and claims. Repeated performance creates conventions and promotes acceptance of one alternative as a norm[51]. In this sense, there is no true or false, real or apparent, original or derived identity[52]. A person does not have a single identity, but is constituted from a host of identities. Identity is subject to change and is multiple. Identities are not facts; rather they are the result (intended or otherwise) of various acts and performances without which there would be no identity at all[53]. The acts and performances of identity construction compel us to believe not only that a particular identity is appropriate and real, but even that an entity such as a corporeal "identity" itself is a necessary and natural component of being human[54].

Furthermore, bodies contain the power to resist, to contest and to refashion corporeal norms. Often, iterations of the bodily form or performance are disruptive and troubling. Categories and hierarchical oppositions emerge along boundaries between

the normal and the abnormal[55]. Radically altered body forms challenge norms in an aggressive manner. Performing in different ways and in inappropriate media transgresses expectations[56]; when repeated, such transgressions establish new norms.

In particular places and at particular times, distinct normative corporeal identities emerge. The normative body, itself constructed and maintained, constrains and prevents alternative presentations of the self. Sustained social performances create and maintain identities. Iterations of bodily form become instruments of cultural hegemony[57]. Acts repeated over long periods of time lay down the sediment of reality and produce a set of corporeal styles that congeals over time[58]. Normative corporeal practices are acts through which the body is shaped, defined, and impelled. Identity is in constant flux, creating a sense of self or selves from a range of possibilities[59] and the construction of identity requires repeated performances during which an already established set of meanings becomes mundane and legitimate[60]. So, identity does not exist on its own as a seamless, timeless quality; it is tenuously constituted in time and requires repeated presentation, representation. The failure to repeat (or, better yet, the repetition of a parody of one representation) threatens to expose the constructed-ness of identities[61].

A critical process within identity construction is the perception and expression of distinctiveness from others[62]. The definition one holds of one's own body is dependent on one having not only a discrete image of oneself but also of the orientation of one's own body in relation to others[63]. Individuals become aware of themselves when they recognize that they are different from others[64]. Divisions and statements of difference create the subject not in terms of what one has and is, but in terms of what one does not have and what one is not; difference creates identity by promoting a sense of lack in the individual[65]. Articulations of formal differences result in the creation of the subject where differences are played out over the shape and surface of the individual's body[66]. Body surface is thus the critical signifier of difference[67]. Thus, there is a surface politics of the body[68] which we can expand to include a morphological politics of the body. Therefore, identity is the product of recognizing similarities (evoking cohesion) and by recognizing differences (evoking lack) from others through the media of the body's shape and surface schema. When a group of people construct their identities by recognizing differences from others, they participate in an exotropic activity; not only do they see other groups but also they recognize how they themselves are seen[69]. This has important consequences: what K. Silverman refers to as self-alienation, where people know themselves through their external images[70]. Difference is not about biological facts; it is about the ways that cultures mark bodies and recreate themselves[71]. Social activities and performances present contexts for the expression and articulation of difference[72].

Also important is the recognition that within a group, the exotropic self-definition creates a standardized notion of the self in which individual differences are minimized in order to sustain overarching categories[73]. Identity categories work better across the

larger scale (the community, the household, the male, the female) where the specific is blurred into the general then they do at a small scale (the particular individual). The visual repetition of a limited range of representations produces and reproduces particular definitions of the person and, at the same time, of the group[74]. In such economies of definition, articulations of image, reality, otherness and stereotypes appear[75]. Just as the spectacular or simulacrum drains fluidity from the actual dynamics of social discourse, so with stereotypes come the fixity and imposed stability that is absent for the flux of actual relations and identities[76].

In contexts of the stereotypic fixing of identity and the definition of self in terms of other, dominant groups construct fixed identities in order to establish and maintain order, to apply reason and authority to communities in which identities flex, shift, morph and flow in ways that threaten and endanger emergent dominant groups. Importantly, bodies are part of the construction of social-community coherence, a process that suppresses differences[77].

Sex is one, though only one, of many dimensions of corporeal difference. One does not simply have a "sex" that statically describes what one is; rather sex is one of many different norms that qualify an individual within a historically specific, culturally coherent community[78]. Thus, the identification of a sexed body is not an unproblematic process; the sexed body is itself constructed by practices that engage the body as target and medium[79]. Importantly, sex is an idealized construct, it is yet another reiterative process through which norms emerge or are imposed. This process is ongoing and the construction is never quite complete because bodies do not comply precisely with the norms imposed[80]. Sex is a constructed dimension of difference along which one becomes culturally intelligible or coherent: many other dimensions of construction materialize through the body: volumetric dimension, colour, smell, texture.

Corporeal thinking in the Neolithic

Out of these arguments, the body (and its representation in media such as figurines or cenotaphs and its position as a character or prop in a funerary performance) emerges as a good thing to think with, a good way to think about who one is and is not. Bodies are things that give themselves to the construction, reconstitution and, especially, contestation of the boundaries between individual and individual, between individual and group, and between group and group. Patterns of bodies (and body patterns) create appropriate mental images and instil moral qualities[81]. Because boundaries inspire the recognition of difference, they are the norms that create and justify inequality within specific moral orders[82]. Any investigation of the body and its representations engages our understanding of what it is that constitutes the human being, the human individual and human corporeality[83].

What can we say about Neolithic figurines? One answer is that figurines, like the Barbie Doll or the anthropomorphs that artists manipulate are tools for thinking. In its essence, anthropomorphic representation questions viewers over viewers' existences. None of the corporeal representations offers a definitive answer about identity or humanness; however, each provokes us to think again about what it means to be humans. Burials and burial ceremony did the same thing. In this sense, both figurines are burial ceremonies are philosophies. They make us think and they made Neolithic men, women and children think. Together, we think about what we are and about who we are. They make us think about how we relate to others and how we manipulate our bodies to express these relationships. They make us think through the body. They make our being manifest through the body. They make us ask questions. The recognition begins to emerge that an important part of living in the Balkan Neolithic was based on new modalities of power, one of which was based on proposing particular body morphologies and surfaces.

Figurines were a potent means by which specific forms and characteristics were sedimented into the foundation of the Neolithic way of living and thinking. They created ways in which people were to see other people and in which they were to see and portray themselves. Perhaps we should argue at a more general level, as Butler does at a more general level for the body, that the Neolithic witnessed a fundamental reformulation of the materiality of the body and of people's conception of articulations between being and body. Figurines are also significant for us because they were unintentional, but potent, manifestations of the body in Neolithic communities. In this sense, their importance is their frequent (perhaps continuous) circulation and visibility in Neolithic people's daily lives. In this sense figurines were important because they are the habitual presentation of the human body in these communities. Regardless of the other superficial uses they may have had (as goddesses, as votives, as portraits, or as objects to be broken and deposited), figurines saturated communities with particular images/senses of being human. The ever-presence of these senses of being human was fundamental to the Neolithic understanding of being.

What was it that made the period 6500–3500 BC different from other periods of the Balkan prehistoric past? Why is it during this period of time that people buried their dead with elaborate grave-goods and ceremony in cemeteries? Why was it from this period, that we recover so many figurines, when the preceding and succeeding periods have none? If, as I have argued elsewhere[84], the Neolithic was about the regularization of living, literally the domestication of the human, the animal, the temporal and the spatial, then there would have been no place for fluid and loose conceptions of identity. If in the Neolithic, landscape was tied down, bounded and contained, then the need would have arisen to solidify the dimensions of what it meant to be a person, to be linked to a particular part of that landscape. Perhaps the key components within fixed identities were figurines and formal burials with their elaborate ceremony and material culture. Fluidity, instability, and flexibility would have threatened any emerging patterns of regu-

larization. In tying down the human, particular sets of similarities and differences came to dominate increasingly standardized notions of individual-self and group identity.

In this reformulation, the material body took up a pre-eminent and indissolvable position in the regulatory norms that emerged as the basis of identity in the seventh, sixth and fifth millennia BC. If bodies are not static but continually constructed, then the limited ranges of figurine form and decoration (especially given the exceptional morphological potential of clay) suggest that, in the Neolithic, there was a reduction in the mutability of the being, that there was a move towards tying down the body and to bounding the dimensions of being. During this new, developing corporeality-of-being, figurines stood as evidence of the number of acceptable and appropriate selves and of Others. They were normative restrictions of being, manifest through representations of the body. Through the reiteration of a material corporeality (via figurines), the Neolithic body becomes a major political norm governing dimensions of being, of being similar and of being different. Figurines are traces of the emergent regulation of identificatory practices. They are part of a process of materialization that created the boundaries of similarity and difference that we understand as personal identity. The Balkan Neolithic was a new corporealization of power relations; figurines were one part of that. Figurines are sites of struggles for value and power in the representation of reality. However, at these sites occurred not only the presentation and maintenance of the fundamental constituents of reality (such as identity), but also the subversion of those fundamentals.

Homogenised body forms. Examination of Neolithic figurines from many different culture groups in southeastern Europe reveals that there is more formal similarity than there is variation in body morphology. This is especially clear within the early Cucuteni–Tripolye figurines where variation from the norm of body appearance was almost non-existent[85]. A similar case can be made for Hamangia figurines: even with variation in body position, the overwhelming impression is one of morphological, indeed corporeal, homogeneity[86]. The high degree of corporeal similarity applies to almost all of the other groups and categories of figurines in the Balkan Neolithic (e.g., Vinča, Gumelnița). Given the potential for formal variation that is inherent in clay when it is worked at this size, such similarity is particularly unusual. While there is almost no shape or variation on the human form that could not have been rendered in clay, figurine morphology varies little. There are exceptions to this internal similarity, for example the late Neolithic material from Cucuteni–Tripolye sites, though one is tempted to understand these in terms of the breakdown of long-accepted perceptions of the body and identity. On the whole, Balkan Neolithic figurines are striking in the absence of variation in specific, appropriate ways of modelling and decorating the body.

Traditional, culture-historical explanation reads the similarity of body form in terms of the expected homogeneity in the material culture of a common group of people. It is more likely that similarities in figurine body form represent sets of norms along with and against which people defined and positioned themselves. Definition and position-

ing need not have been conscious efforts. Rather, the presence of body representations, created for any range of primary functions (play-things, votives, portraiture) created a standard, corporeal, register that allowed people to visually judge differences and similarities between themselves and others. Importantly, then, the representation of a body through a figurine may have nothing to do with the rise of the individual[87]; on the contrary, the presence of so many similarly formed and decorated figurine bodies suggests a shared conception of what a person was and should look like.

In her discussion of Thessalian Neolithic figurines, Laia Orphanidis has emphasized the precise repetition of body form and decoration[88]. In these repetitions and in the constraints on modelling and decoration are found the mechanisms of social conformity that are at work in modern body culture such as the Barbie-Doll: created, purchased, given and played with as a toy but containing fundamental, highly political, yet unintended consequences for how young girls think about their bodies, the bodies of their mothers and the bodies of their friends. The inversion of these subconsciously created definitions of the female human body is at the core of the work by modern artists such as Cindy Sherman, who manipulate, rearrange and mis-represent the female form in order to force the viewer to think again about how they look at and understand women in modern society. While the stimulus of C. Sherman's work is intentional, the stimuli of the Barbie-Doll and of the Neolithic figurine are less obvious (invisible and unintentional even) and are only found deep within the implicit of the every-day.

In the repeated, regular and habitual visibility of figurines in the Neolithic, it is possible to see a corporealization of the self and of the person. Critically (and paradoxically) through this ongoing, always present, process of body homogenization, the individual person, as defined as a corporeal being, was tied-in to the greater social whole. It was a subtle, yet relentless, undetectable and, no doubt, unintentional process that led to the coherence of the group, that silently convinced people that, despite any range of actual differences among particular individuals, those individuals belonged together, linked by a common corporeality.

Furthermore, the Neolithic corporealization of the self and the person was a homogenizing process through which diversity and differences were rejected and suppressed. Across these Neolithic landscapes, within village boundaries, and between individual buildings, the corporealized individual (and its representation) became the core of social community. In this sense, it was the actual physical diversity among the living, breathing, flesh and blood individuals that were the greatest risks to community cohesion. The existence and long-term success of these forms of social aggregations (i.e., the 3000 year survival of the Neolithic way of living) depended on the continuous, unintentional, suppression of the risks that diversity among living bodies posed of social division and disintegration. In itself, this was an incredible paradox: the individual body, through its repeated visual representation, was the essence of the communal. On the one hand there were public ceremonies linked to burials (at least for the Hamangia

communities), possibly to rituals of deposition (as suggested by J. Chapman[89]), and to events of house building and destruction (as argued by R. Tringham[90]); these occasional ceremonies loudly proposed intra-group distinction and intra-community divisions. At the same time, however, figurines had saturated the visual world of these communities with particular images and arrangements of the human body; figurines were the quieter rhythm of social coherence. We can go further still and suggest that the homogenized representation of the body was the core of a subconscious politics of social homogenization that held together Balkan Neolithic communities.

In this sense, figurines were themselves interpretations and explanations: material interpretations of how it was to be, material explanations of how it was to be different and how it was to be the same. It is tempting, even, to suggest that Neolithic people preferred the virtual representation and definition of humans and humanity (seen in figurines) to the actual, dirty, fluid, flexing, Neolithic humanity (seen in their own bodies). This is close to Baudrillard's simulacrum: that figurines established a real thing (a clay human representation) that had no reality. This is also similar to Gatens' concept of an imaginary body: a body, constructed by a shared language and common institutional practices but which lacks any single fixed significance[91]. There were no living humans who looked like either the pneumatic Hamangia figurines or the many face-less examples from Thessaly or the Cucuteni–Tripolie sites. In this sense the figurines were a hyper-reality. They were not a reflection of any basic, objective, reality; in fact they bore no relation to any one reality. They were their own pure simulacra.

The recognition that these Neolithic communities understood the human body to be the primary site of the individual and of the self opens up understandings for other communities, both those that shared these millennia and those that came before and after. There is no reason to assume that there were not other sites (in both the sense of settlements and of media) through which the individual and the self existed. Thus, in some communities the activities and materials of mortuary ceremonies engaged people's understanding of relationships and identities. All communities shared the socially organizing facility of the built environment. The rituals of architecture (and, to a more limited extent in the communities investigated in this book, of burial) had particular effects on how people understood their relationships to others, whether those relationships were defined by prestige, status or hierarchy (as could be contested via burial ritual) or whether they were defined in terms of what activities one carried out where and with whom (as facilitated by the boundaries of houses and villages). The built environment (and the treatment of the deceased) were big and obvious ways in which social and political relationships were guided and fashioned; both treated the body in particular and highly visible ways either by decoration and deposition (or incineration) or by the choreography of movement into, across, and out of a site. Figurines worked in much subtler and, thus, much more powerful ways, and made people think more deeply (without conscious recognition that they were thinking at all) and absorb the ways in which

each person fitted into the larger social group. In this way, figurines did not actively proscribe systems of identities nor even did they represent preferred systems of identities; if anything, figurines were identity. In the Balkan Neolithic, figurines were more successful than other media in engaging people's philosophies of identity and of being because of their particular physical conditions. Thus, as miniature objects, figurines imparted a sense of mastery, comprehension and well-being to the person looking at and handling them: the seductive illusion of comfort and security and the entry into alternative realities.

Conclusions

Figurines were philosophies in the politics of being in the Neolithic. Figurines don't mean any one thing, yet they meant everything. They questioned the familiar and comfortable orientations and made people aware of their contact in the world. They altered the ways that people saw the world around them. They created a series of parallel realities that ran along the actual; in doing so they were part of people's (possibly subconscious) definition of the edges of their visible realities and of what made each person distinct (if they were distinct at all) from those other places, times and individuals. Figurines made people question who they were, where they were, what they were, and what were their relationships to others. In the Neolithic Balkans, figurines were at the core of a physicality of being that became visible in new conceptions of corporeality; the body became the key to understanding identities and relationships in the world. Therefore, if there is a meaning of figurines, if they had a function, then it is that they were philosophies of being human.

In the early Bronze Age that followed (from 3500 BC), the politics of identity and of the body slipped into other media and was played out with other sets of material and through other activities and rituals (e.g., burial and drinking). In these different social realities, objects such as figurines are not visible. Indeed, it is as if the body played a radically different role in more secluded, hidden places such as the large burial mounds that came to define the early Bronze Age ritual landscapes. Not unassociated with these changes was an equally dramatic disappearance of the permanent built environment as a part of the negotiation of relationships among people: basically long-term sedentism had no role. Furthermore, there was a move back to more mobile relationships with the landscape, similar to those that had been present before the Neolithic, in which buildings were less permanent and less visible and where there no longer existed the need to physically monumentalise the place of the living. The questions of who one was and how one related to others, the philosophical and political questions of being, had changed irrevocably.

[1] By Neolithic I refer to the period 6500–3500 cal. BC in Southeastern Europe and thus include the Chalcolithic and Eneolithic.

[2] For an entry into the Varna literature, see the discussions in **A. Fol, J. Lichardus** (Hrsg.). Macht, Herrscaft und Gold. Das Gräberfeld von Varna und die Anfänge einer neuen europäischen Zivilisation. Saarbrücken, 1988 (= **Macht**…); **D. Bailey.** Balkan Prehistory: Exclusion. Incorporation and Identity. London, 2000; **J. Chapman**. Fragmentation in Archaeology. People, Places and Broken Objects in the Prehistory of South Eastern Europe. London, 2000; and Ivan Ivanov's own publications: **I. Ivanov**. Les fouilles archéologiques de la nécropole chalcolithique à Varna. – StP, 1–2, 1978, p.1–26; **И. Иванов**. Раннохалколитни гробове до град Варна.– ИНМВ, 14(29), с. 81–93; **I. Ivanov**. Le chalcolithique en Bulgarie et dans la necropole de Varna. – In: **A. G. Poulter** (ed.). Ancient Bulgaria, vol. 1. Nottingham, 1983, p. 154–163; **I. Ivanov**. Die Ausgrabungen des Gräberfeldes von Varna. – In: **Macht**..., S. 49–66; **I. Ivanov**. Das Gräberfeldes von Varna. Katalog. – In: **Macht**..., S. 183–208.

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[4] For a discussion of these sites and their interpretation see **D. Bailey.** Balkan Prehistory…; and **J. Chapman**. Fragmentation…

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[7] **H. Todorova**. Die kupferzeitliche Siedlungen in Nordostbulgarien (= AVA–Materialen, B. 13). München, S. 144–165.

[8] **T. G. Ivanov**. Tell Radingrad. – In: **H. Todorova**. Die kupferzeitliche..., S. 166–174; **Т. Г. Иванов.** Многослойное поселение у с. Радинград, Разградского района. – StP, 7, 1984, с. 81–98.

[9] **I. Angelova**. Tell Targovishte. – In: **H. Todorova**. Die kupferzeitliche..., S. 175–180; **И. Ангелова**. Енеолитна селищна могила Търговище. – ИИ, 14а, 1986, с. 33–44; **И. Ангелова**. Праисторически некропол при град Търговище. – ИИ, 14а, 1986, с. 49–66.

[10] **А. Радунчева**. Виница. Енеолитно селище и некропол (= РП, VI). София, 1976.

[11] But see **D. W. Bailey, D. Hofmann**. Review of H. Todorova (ed.) 2002. "Durankulak, Band II. Die Prähistorischen Gräberfelder von Durankulak, Teil 1 (Text) und Teil 2 (Necropole) (Berlin and Sofia: Deutsches Archäologisches Institut)". – Antiquity, 79, 2005, p. 220–222 for comments on the recent Durankulak publications.

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НЕОЛИТНИ ТЕЛА ИЗВЪН ГРОБА: РАЗБИРАНЕ ЗА СЪЩНОСТТА

ДЪГЛАС БЕЙЛИ (СТАНФОРД)

В статията се развива идеята, че за да могат да проучат активно и подробно неолита в Югоизточна Европа, археолозите трябва да разгледат богатите гробни находки, като тези във Варна или Дуранкулак, в по-широк социален и политически план. Една от най-ценните перспективи за този интерпретивен проект се основава на човешкото тяло и ролята му в създаването на идентичност и политика. Включено е кратко въведение в литературата за целите на човешкото тяло, особено полезна за археолози, изучаващи представянето му в праисторическото минало. Главният аргумент се основава на ново разбиране за неолитното представяне на човешкото тяло във формата на антропоморфни статуетки. Основният довод е, че телата, открити във Варна и Дуранкулак (както и тези в некрополите във вътрешността на страната), не отразяват социалната структура или йерархия. Всъщност тези тела, третирането им, даровете и ритуалите около погребването им са важни компоненти (или сценичен "реквизит") в създаването на въображаеми идеологии за власт и социална йерархия, където такива не са съществували или където действителните правила в ежедневните отношения са по-неуловими. Тези по-бегли следи могат да бъдат открити в обикновените многочислени антропоморфни фигурки.

МИНЕРАЛОГИЧНИ ОСОБЕНОСТИ НА АНТИГОРИТОВИЯ СЕРПЕНТИНИТ КАТО СУРОВИНА СРЕД НЕОЛИТНИТЕ И ХАЛКОЛИТНИТЕ АРТЕФАКТИ ОТ ТЕРИТОРИЯТА НА БЪЛГАРИЯ

РУСЛАН И. КОСТОВ (СОФИЯ)

Серпентинитът е метасоматична скала, получена при промяната на първични ултрабазични (главно пироксен и оливин съдържащи) скали и по-рядко при контактно-променени магнезиално-карбонатни (доломитни) скали. Той е изграден предимно от серпентинови минерали, към които се отнасят хризотилът, антигоритът и лизардитът – слоисти силикати с редуване на слоеве от силиций-кислородни тетраедри и бруситов тип октаедри[1]. Относителната му твърдост по скалата на Моос е до 3–4 в зависимост от минералния състав, а блясъкът му е стъклен до мастен. Цветовите разновидности варират от жълтозелени до тъмнозелени с разнообразни текстури (в някои случаи може да прилича на нефрит или жадеит). Годните за декоративни цели серпентинити обикновено са вместени сред хлоритизирани базични скали. Те изграждат жилоподобни тела с неголяма мощност. По краищата си декоративният (благородният) серпентинит (серпофит) може да бъде просветляващ.

Етимологията на скалата е от латински *serpentina* и английски *serpent* – змия (за сходството с шарките на някои змии; на руски език – *змеевик*). Бовенитът е разновидност на серпентинит с бледозелен цвят, използван като название предимно в англоезичните страни. Хризотилът $Mg_3Si_{21}O_5(OH)_4$ или антигоритът $(Mg,Fe)_3Si_2O_5(OH)_4$ като главни съставки на серпентинитите са съответно високо и нискотемпературна модификация с един и същи състав. Известни са още моноклинни и ромбични разновидности – съответно кристализиращи в моноклинно-призматичния клас на моноклинната сингония (антигорит; клинохризотил) и ромбично-бипирамидалния клас на ромбичната сингония (ортохризотил; парахризотил). Лизардитът $Mg_3Si_2O_5(OH)_4$ е полиморфен с посочените два минерала, но кристализира в тригонална и хексагонална сингония – съответно с политипни модификации $1T$ и $2H_1$.

Серпентинитът се среща в региони на разпространиние на ултрабазични скали. По-известни находища има в Австралия, Азербайджан (Нагдалинско), Афганистан, Великобритания (на полуостров Корнуел), Индия, Казахстан, Китай, Нова Зеландия, Русия (Дедюхинско, Нижнетагилско, Нейво-Шейтанско, Азбестовско,

Шабровско, Белоусовско, Григориевско, Мраморско, Тургоякско и други находища предимно по източните склонове на Среден и Южен Урал; Куюлско на Камчатка), САЩ, Таджикистан (Бирюзакан) и Украйна[2].

В България серпентинизирани ултрабазити са разпростанени предимно в южните части на Източните Родопи, в Ихтиманско и в югозападна България, главно при планината Беласица[3].

Серпентинитови артефакти

В България артефакти от серпентинизирани ултрабазити са известни от редица неолитни и халколитни обекти. В редица случаи обаче, скалата е била описана или идентифицирана неправилно, което предполага един преглед на публикувани и непубликувани данни. От серпентинит се изготвят два типа предмети – престижни изделия (накити, елементи за украса – мъниста, амулети) с по-малки размери и утилитарни предмети (сечива – тесли, длета и др.) с по-големи размери.

По цвят намерените на нашата територия артефакти от серпентинити варират от бледозелени петнисти или с прожилки до тъмнозелени и почти черни на изглед. Това също така предполага определи неточности при визуалната диагностика при тяхната музейна или научна обработка.

Некрополи при Варна и Дуранкулак. Сред инвентара от некропола Варна II, датиран в средния халколит (средата на V хил. пр.Хр.) са открити множество мъниста от малахит, 31 златни мъниста (приемани за едни от най-старите обработени златни артефакти в света), медни гривни и един пръстен[4]. В огърлица (инв. № I-1932), съставена от общо 130 късоцилиндрични зелени мъниста се срещат главно агрегати от малахит с вариращи нюанси на светло до тъмнозелен цвят, но и се установяват 18 броя мъниста със същата късоцилиндрична форма с бледозелен до тъмнозелен цвят с друг минерален състав. Те са изградени от серпентинизирана ултрабазитова скала, като серпентиновият минерал рентгенографски е определен като антигорит[5]. В много от тях се наблюдават черни заоблени включения от хромшпинелиден минерал. Тези мъниста са били полирани по тяхната цилиндрична повърхнина. Вероятно те не са били разграничавани от аналогичните малахитови, поради сходството в оцветяването. Сравнително константната и консервативната им форма (къса цилиндрична) би могла да се приеме и за възможното им използване, освен за декорация и като домонетна форма на обмяна, което се потвърждава от сравнението и с други минерални мъниста, както и с вида и теглото на златните мъниста[6].

Със серпентинитов състав се приема също така "прешлен" от тъмнозелена, на места черна скала, с размери 3,2x3,1 см и отвор 1,1x0,9 см (инв. № I-1930). Пробит е двустранно и е полиран изключително добре, въпреки сложните заоблени форми. Представлява макара с пет хоризонтални жлеба, изработени изключително прецизно и правилно в тясната си част. За този обект като най-вероятно предназ-

начение може да се предложи използването му като направляващ лъка държател на пробивач за направа на отвори в предмети от твърди минерали (например при пробиване на централния отвор на мъниста) и скали (например при пробиване на отвори на брадви)[7]. Теглото на обекта е 50,85 г. Вероятно от същия материал е изработена и малка тъмнозелена тесла (инв. № I-1929; 7,1x4,6x1,4 см) с тегло 80,78 г, както и отнесен към същата епоха ритуален предмет със сплесната вретеновидна форма и издълбани и полирани от едната страна четири дълбоки жлеба, открит в околностите на с. Сава, Варненско.

Сред артефактите от некропола на западния бряг при Дуранкулашкото езеро в североизточна България също се установяват множество бледозелени късоцилиндрични мъниста от антигоритов серпентинит[8]. Среща се например в огърлица от бъчвовидни и късоцилиндрични мъниста от черен (лигнитно вещество), зелен (антигорит) и бял (карбонатен) материал от късния халколит (инв. № К0977; гроб № 519; култура Варна – намерена около краката на скелета). В друга огърлица се отбелязват 27 броя мъниста от серпентинит (антигорит), 6 черни (лигнитни) мъниста и 16 златни мъниста датирани пак от късния халколит (инв. № К1929; гроб № 756; култура Варна II–III). Проба № К1046 от гроб 496 представлява фрагмент от мънисто с ширина 0,13–0,15 cm и двустранен отвор при неполиран външен пояс. Данните за междуплоскостните разстояния отговарят на антигорит, а линиите при 4,75; 2,03 и 1,91 d (Å) се дължат вероятно на фини примеси от хлорит – клинохлор[9]. В някои от обработените серпентинитови късове се наблюдават черни включения от шпинелиден минерал.

Южна и Югозападна България. В неолитното селище Ковачево в югозападна България е описано сравнително голямо процентно количество (50%) от изучени каменни артефакти (предимно тесли и длета), изработени от тъмни серпентинизирани ултрабазити, които при допълнителното микроскопско изследване се оказаха силно талкизирани[10]. Сред каменните артефакти присъстват и голям брой нефритови изделия. Долината на река Струма е възможен път за древна търговия с престижни минерални, скални и биоминерални (черупки) суровини, наред с разпространение на керамиката. В района, в непосредствена близост са известни няколко ултрабазитови масива и разкрития, включително с променени ултрабазити. Най-големите описани серпентинитови тела са при с. Ключ и с. Коларово в планината Беласица. Множество по-малки тела са известни от планината Огражден и от южен Пирин. Засега обаче не може да се установи коренно находище за серпентинитовите артефакти, които могат да бъдат и от находища извън територията на страната (в югозападна и западна посока).

Отделни находки от серпентинит (предимно тесли) са открити и в други неолитни селища по поречието на Струма като Българчево и Гълъбник. В Пазарджишко (селищна могила Юнаците) като възможен източник на някои серпентинитови артефакти се посочват ултрабазитите по северния ръб на Родопите около селата

Горнослав, Първенец, Марково и Храбрино, както и добре познатите находища в Ихтиманска и Същинска Средна гора (данни на Л. Мачева). От същия район в раннонеолитното селище Ракитово са установени 3 серпентинитови артефакта[11].

Находки и разпространение в съседни страни. Антигоритов серпентинит е установен и описан сред артефактите от неолита и халколита в редица централно- и източноевропейски държави – Италия[12], Швейцария[13], Хърватска[14], Чехия[15], Словакия[16], Полша[17], Украйна[18], Сърбия[19] и Гърция[20]. Описаните артефакти се отнасят главно до утилитарния тип изделия от серпентинит – тесли, длета и брадви.

В Гърция коренни серпентинизирани ултрабазити се разкриват в района Пиндос-Вуринос, както и при планините Отрис, докато по-малки по размери тела се срещат в западна Атика, в източен Пелопонес, в Евбея, в гръцка Македония, при Еврос, както и на редица острови – Лесбос, Крит и Родос[21]. В Сърбия ултрабазитите са разпространени главно меридионално в Динаридите южно от Белград в посока към Скопие в Македония, докато неолитните селища с артефакти от същия материал (отбелязан като най-разпространен от метаморфните скали) са разположени предимно по долината на река Морава докъм Ниш[22]. В Словакия коренните находища на серпентинит са сравнително отдалечени от местата на намиране на неолитни артефакти, изработени от антигоритов серпентинит[23].

Методи за изследване на серпентинитите

Основен метод за разграничаване на серпентинита от другите зелени до черни минерали, участващи в състава на различни по форма и вид артефакти е рентгеноструктурният анализ[24]. За бърз полеви или лабораторен тест може да се използва относителната твърдост на серпентиновите минерали, чрез която те да се разграничат например от по-твърдите нефрит, жадеит, зелен яспис или други минерали и агрегати. Определен интерес представлява електронният парамагнитен резонанс и другите спектроскопски методи, чрез който се идентифицират различни по природа дефекти в серпентиновите минерали[25], които биха били полезни при използването им за диагностични цели. Така например, в антигорита са установени и описани сигнали с g значения в пределите 5,4–3,1, отговарящи на йони Fe^{3+} и секстет с g=2, отговарящ на йони Mn^{2+} в кристалната структура[26]. Чрез Мьосбауеровата спектроскопия пък се опредя координацията и валентността на железните йони[27]. Изследват се и магнитните характеристики (магнитна възприемчивост) на серпентинитите от артефактите и от потенциалните им находища[28], които също биха могли да се използват за диагностични и сравнителни цели.

Липсата на минералогически критерии при описанието на минералните и скалните артфакти в праисторическите находки кара много от изследователите в редица случаи (също и в по-старата литература) да използват при описанието термини от типа на "зелен камък" (*greenstone*) или "зелена скала" (*green rock*). Броят на зелените минерали или зелени агрегати и скали обаче е потенциално много

голям, например (в ред на намаляваща относителна твърдост): зелен кварц (авантюрин) или халцедон (хризопраз), зеленикав яспис, везувианит (везувианитит), гросулар (гросуларит), жадеит (жадеитит), зелен микроклин (амазонит), мо-ситсит, нефрит, амфиболит, опал (празопал), различен по състав хорнфелз, вулкански туф, серпентинит, пренит, пектолит, хлорит (хлоритов шист), пирофилит и талк (талков шист; стеатит). Под названието *greenstone* понякога пък се подразбират всякакви метаморфни скали от зеленошистния фациес или такива, образувани при високобарични условия, например жадеитити или еклогити[29]. Посочените факти дават представа за една нереализирана или една слабо реализирана геолого-минералогическа характеристика на веществения състав на артефактите, което е от особено значение при по-нататъшни опити за тълкувания на произхода на материала и евентуални търговски пътища на неговото разпространение през неолита и халколита.

Следователно, за правилната диагностика на материала на артефактите от решаващо значение е определянето на минералния състав, който най-достоверно се доказва чрез рентгеноструктурен анализ. Уникалността на някои изделия, както и проблеми на музеологията не позволяват в редица случаи да се взимат дори малки проби за анализ. В такива случаи трябва да се прилагат косвени и ненарушаващи методи (спектроскопски; оптически) за диагностика на материала. От значение е и опитът на изследователя по отношение на познаването на сравнителен археологически материал с подобен или сходен състав.

Примесни йони или повърхностни окислителни процеси могат да изменят първоначалното оцветяване на артефакта и той да бъде визуално трудно различим като минерален или скален вид. На следващ етап може да се правят дюншлифи за детайлно петрографско (оптично микроскопско) описание[30], както и взимане на проба за микросондов или друг химичен анализ.

Полирането на повечето артефакти допълнително затруднява диагностиката им поради невъзможност да се оценят зърнистостта, структурата и текстурните особености на материала, наред с негови физични характеристики като естествен цвят, блясък, цепителност, лом, морфология на минералните зърна, съотношение мужду фемични и салични минерали в скалните разновидности и други особености (например вътрешни дефекти и включения при минералите). В някои серпентинити и свързани с тях изделия се отбелязва явна нехомогенност в разпределението на основния компонент – антигорит на фона на фини прожилки от преминал в азбест хризотил, а при метаморфните скали при изработването на артефактите от значение се оказва също така посоката на шистозността[31]. Пробиването на дупки за дръжки в серпентинитови изделия също предполата допълнително изследване за евентуалния вид на използвания абразив и вид пробивач. В някои неолитни селища от Долна Силезия, недалеч от известното находище Йорданов, са установени фрагменти от пробити и полуготови изделия от серпентинит[32].

Серпентинит и нефрит

Серпентинитът е генетично привързан с находища на друг ювелирен (гемологичен) материал – нефрит, който е открит в артефакти от неолита и халколита на Балканите и е особено добре представен на българска територия[33]. Нефритът $\square Ca_2(Fe,Mg)_5Si_8O_{22}(OH)_2$ е фина плътна скритокристална влакнеста разновидност на амфибол със състав в редицата фероактинолит-тремолит. Той е светло до тъмнозелен, но може да бъде още бял или жълтеникав, кафяв, червен и черен от примеси. Понякога в него има черни петна от хромшпинелидни минерали както при серпентинитите. Обикновено нефритът се образува на контакта на серпентинизирани ултрабазити с кисели или базични скали. По-редки са апокарбонатните нефрити. Независимо, че на Балканите (особено в Албания, Македония и Гърция) има множество серпентинитови тела, свързани с т. нар. офиолитни пояси, засега не са известни коренни находища на нефрит. Нефритът и серпентинитът често си приличат на външен изглед. По тази причина те не са били разграничавани минералогически. Най-важният бърз диагностичен белег помежду им е в различната относителна твърдост по Моос – 4 при серпентинита и 6 при нефрита.

Появата на нефрита през неолита и изчезването му в състава на артефактите след халколита поставя въпроса за своеобразно население, което е ценяло, използвало и търгувало със зеления минерал. Серпентинитът присъства наред с нефрита в находки от неолитните селища при Гълъбник[34] и Ковачево[35]. При по-внимателно изучаване на инвентара в музейните колекции двата минерала могат да бъдат открити заедно сред различни по форма и вид находки. Широкото разпространение на нефрита още от неолита на територията на България и в някои съседни страни на Балканите дава правото за обособяване и въвеждане в историята на гемологията на специфична "Балканска нефритова култура", с по-ранна възраст от добре известните неолитни "нефритови култури" в Китай и Руската федерация[36].

Заключение

На територията на България са описани разпространени редица неолитни и халколитни артефакти от антигоритов серпентинит, който е вече минералогически достоверно определен. Типологично са представени утилитарни предмети (най-често тесли и длета) и престижни украшения (най-често мъниста). Предполага се неговото още по-широко разпространение в различни археологически колекции, което изисква по-прецизна минералого-петрографска характеристика на артефактите.

Серпентинитът е генетично свързан с друг зелен ювелирен (гемологичен) материал – нефрит, който е по-твърд и от който са изработени редица престижни (амулети; украшения) или утилитарни артефакти. Двата минерала се срещат и сред артефактите на някои съседни на България страни. Въпросът за произхода и пътищата на разпространение на двата типа суровина и изделия обаче остава

открит, както за артефактите от българска територия, така и за тези от съседните територии. Предполага се необходимостта от съвместни минералого-археологични проучвания, чрез които с различни съвременни методи да се изследват както артефактите, така и минерални или скални проби от потенциално възможно разработвани в миналото коренни находища.

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MINERALOGICAL PECULIARITIES OF ANTIGORITE SERPENTINITE AS A RAW MATERIAL AMONG THE NEOLITHIC AND CHALCOLITHIC ARTIFACTS ON THE TERRITORY OF BULGARIA

RUSLAN I. KOSTOV (SOFIA)

Serpentinite of an antigorite composition, ranging from pale and dark green to black colour, has been identified among a lot of Neolithic and Chalcolithic artifacts on the territory of Bulgaria (with main examples in Northeast Bulgaria – from the Chalcolithic necropolei at Varna and Durankulak as well as in Southwest Bulgaria along the Struma Valley from the Galabnik and Kovachevo Neolithic sites). From a typological point of view the artifacts represent utilitarian tools (mostly axes and chisels) or prestigious jewellery objects (mostly mineral beads). The presence of this type of rock can be considered wide spread in archaeological collections, thus a more precise mineralogical and petrographic study has to be organized. Serpentinite (serpentine minerals) is genetically related to another green gemological material – nephrite, which is harder and has been also used as raw material for similar artifacts. Both materials are known also in artifacts from some other Balkan countries. The question for the sources and distribution of both raw materials is open as there is a favorable geological background, but the exact deposit or deposits have not yet been spotted. Joint archaeological and mineralogical studies are considered as fruitful in this respect.

CHANGES OF THE BURIAL RITES WITHIN THE TRANSITION FROM HAMANGIA TO VARNA CULTURE

YAVOR BOYADZIEV (SOFIA)

Ivan Ivanov connected his archaeological work with one of the most remarkable archaeological discoveries of the 20th century: the Varna Chalcolithic cemetery, the excavation of which has changed our understanding of European prehistory. The studies over the past three decades clearly indicated that this cemetery is not an isolated phenomenon but has its roots and precedents in earlier cultural development in the Western Black Sea coast area.

By the end of Early Chalcolithic in the Lower Danube, considerable ethnocultural transformations took place, which led to the appearance of two significant ethnocultural blocks – the Kodžadermen–Gumelnița–Karanovo VI and the Krivodol–Sălcuța–Bubanj hum Ia – whereas along the western Black sea coast the Varna culture has emerged. The changes refer to a number of elements of the material culture but they are especially indicative in the sphere of the spiritual culture. One of the most conservative but also most indicative elements are the burial rites. Their development is clearly evidenced in the prehistoric cemetery near the village of Durankulak[1]. The excavation of about 1200 burials covering a time span of a millennium provides excellent chance to trace the evolution of the Late Neolithic and later Chalcolithic community. All stages of both the Hamangia and Varna cultures are represented at the cemetery. Our attention here is focused on the last (fourth) stage of the Hamangia culture when a number of new features appeared in the traditional burial rites. Further on, these features developed to obtain their final shape in the first stage of the Varna culture.

In order to emphasize clearly the changes in the Hamangia IV phase I shall outline briefly the basic features of the rites of the preceding cultural stages. To a vast extent, these features are identical to those observed in other cemeteries (mainly Cernavodă) of the Hamangia culture.

During the first three phases (I–III) of the Hamangia culture, the cemetery has been situated about 150 to 200 m south of the settlement upon the most elevated and flattened part of the landscape at that time. Thus, it has been located between the settlement and the ancient riverbed, reaching the beginning of the slopes that descend to the river in southwestern, south and southeastern direction. Graves have been dug to various depths: from 0,45–0,50 to 1,20–1,30 m. However, in most cases the depths are generally the same: from 0,50–0,55 to 0,80–0,85 m. There is not clearly visible age-and-sex differentiation in the graves depth.

The shape and dimensions of the grave pits could not be established. The burials have not been marked on the surface or the marking has been made of perishable material. This is evidenced by the numerous mutual disturbances of burials in this phase. They were also due to the limited initial area, which led to the intensive concentration of burials in it. During the Hamangia III, coverings of the body or of the burial chamber first appeared. They were made in various ways: covering of the body with sherds of storage vessels; funeral offerings – most often broken storage vessels and animal skulls – upon the pit backfill (the so-called remains of burial feast); combined covering of a slab stone and sherds; covering or enclosure with slab stones.

Burials were made by inhumation in three basic positions: extended on the back, crouched on the right side, and crouched on the left side. Extended on the back position dominates with both males and females; extended on the back/crouched ratio is 78 to 22%[2]. In the case of extended on the back burials, considerable variety of upper limb positions could be noticed. The position of tightly bent in the elbows arms situated on (or along) the chest dominates. Stretched along the body or lightly bent in the elbows arms with hands on the pelvis could be observed relatively often (position common for the Cernavodă cemetery). In some cases, the arms were bent at 90º in the elbows and the forearms lied on the midriff.

The inhumation in crouched position was much rarer. It is visible mainly in female burials where a clearly expressed trend of increase is apparent – from 21,8% in the Hamangia I–II to 50% in phase III[3]. Crouched on left side skeletons dominate: 60 to 40 per cent, respectively. The three main positions of the lower limbs – lightly, medium and tightly bent – are included as the medium bent position dominates in the Hamangia III phase.

The deceased were buried with their heads aligned to the settlement, so that the ones buried in the center of the cemetery (which was to the south of the houses) had been aligned in North–South direction while those in the periphery had been aligned to the NNE/NE or NNW/NW direction (the dead bodies at the remaining extramural cemeteries in the Late Neolithic and Early Chalcolithic of the Lower Danube were also aligned to the settlement[4], due to which each of them displayed independent alignment to the cardinal points: Cernavodă (SE/NW), Cernica (W/E), Polyanitsa (E/W)[5].

Symbolic burials were also practiced from the very beginning of the Hamangia culture. In these cases, grave pit and goods were present but without any evidence for human body.

In the early stages of the Hamangia culture, grave goods comprised most often of teeth and bones of grazing animals (including entire skulls) and sherds. In the Hamangia III, an increasing number of complete vessels – such as cups, bowls and "bottles" – is observed. More rarely, stone axes and adzes were put, mainly in male but sometimes in female burials, too. Flint artifacts were also relatively rare; they were found in 13% of all burials. The number of individuals buried with adornments such as *Spondylus* bracelets, strings of *Spondylus* beads as well as beads made of malachite, *Dentalium* or deer dental blisters is also comparatively small[6]. No differentiation of specific female or male grave goods was found[7].

In the Hamangia I–III phases, there were no strict rules for placing of the grave goods. They might be situated around and/or upon the whole body. This applies especially for teeth of grazing animals and sherds. Both could be found scattered around the skeleton (from head to toes) as well as in the backfill. In the Hamangia III phase, the complete vessels were usually clustered on both sides of the head or on the upper chest area.

The changes in the Hamangia IV phase refer to all elements of the burial rites, which can be registered archaeologically.

Burial layout

In the Hamangia IV phase, the cemetery was relocated to the south, on the slopes to the riverbed. Most probably, this shift should be connected to the settling of the elevated areas of the landscape and the western slopes in phase III, as well as to the already established understanding (presumably reflected in religious beliefs, customs, taboos) of the grave sanctity. A hint in this direction is the absence of disturbed earlier burials, which often occurred in the preceding phases. It seems that to the south, the cemetery has reached the riverbank but the high level of water table in this area made impossible further field excavations.

Burial features

In the Hamangia IV, the idea of funeral chamber finally took shape. Slab stones came to use in the arrangement of the burial chambers. Stone features of various types were observed in 68,7% of all burials. For phase III, this percentage is only 2,6 and most probably refers to the very final of this period. The trend to stone features usage is clearly visible within phase IV: the burials without stone structures are 30,8% in the beginning (IVa) while in the end (IVb) they are only 22,2%. The alternative methods of shaping and separation of the burial chamber, used in the Hamangia III – with sherds of storage vessels, funeral offerings upon the backfill of the chamber (the so called remains of burial feast), combination of slabs and sherds – disappeared in phase IV. At the same time, almost all of the known types of stone features spread out. Certain regularities in their use could be established. In phase IV, burials of adults covered with horizontal slabs were situated mainly in the northern periphery of the cemetery. The graves with a row of vertical slabs erected along the body (usually only on one side of the deceased) were clustered in the southwestern part of the cemetery. Sexual differentiation is visible in the slating with horizontal slabs overlapping with one end the solid earth next to the burial chamber, and the backfill with the other. The slab stones of male burials left the eastern half of the burial chamber – sometimes the left half of the body, too – partially uncovered. On the other hand, female burials were characterized by slating, which had left the western part of the chamber – and the right part of the body, respectively – completely uncovered. The case with the row of vertical slab stones along the body was quite similar. However, the slabs in male burials were erected to the left of the body, and in female burials, to the right[8].

In phase IV, the beginning of sex-and-age differentiation of the vertical stratigraphy could be noticed: infant burials were the shallowest, followed by females; adult males were buried most deeply. However, this cannot be taken as a total practice since it is not rarely when this ratio is broken. It seems that it was strictly followed mainly in family burials when a complex of graves had been formed. In such cases, two or three graves were aligned to each other very precisely and evidently each of them was related to the rest. They were common only in the Hamangia IV.

The facts available give me reasons to believe that that was in the last phase of the Hamangia culture when the ideas of the essence and the appearance of the "house of the dead" had finally taken shape. It is quite possible that the common propagation of stone features in burial practices was related to the transition to stone houses along with the shift of the settlement to the Golemiya Ostrov island. It is not clear if the use of various types and kinds of stone features (as well as the territorial differentiation) have been defined by chronological distinctions within this phase (the available dates as well as the different types and kinds of features in some of the complexes do not support such a theory), or is due to other reasons. It is possible that the diversity of burial features followed the diversity of house building in the settlement where different building patterns had existed simultaneously[9].

Body position

Inhumation methods. The main body positions – extended on the back, crouched on the left side and crouched on right side – survived in this stage. However, the sexual differentiation became more obvious. A distinct position became dominant with male burials: extended on the back, with arms tightly bent in the elbows, and the forearms across or next to the chest. There is only one male burial with slightly bent arms.

The diversity of inhumation with female burials continued to exist. However, the ratio between the different positions changed considerably. The number of extended burials decreased to only 26,7% (they were 50% in phase III). In this group skeletons with slightly bent or extended arms are equal in number to those with arms tightly bent in the elbows. The crouched position became dominant: 73,3%. However, unlike in previous stages the crouched on the right position came to prevail over the left, and with considerable difference at that: 91,3% of the buried in crouched position juveniles and adults were on the right side. The crouched on left side skeletons are only two. However, the crouched on the left position continued to prevail with the children burials.

The type of the crouched position also changed; they are mainly tightly flexed (59,1%). The medium flexed skeletons are 25%. As a whole, in this phase two parallel trends are visible: a tendency of differentiation of male and female inhumation modes, and the same time, of position standardization for both sexes. The process of sexual differentiation of inhumation modes is distinctly visible not only compared to the previous and next phase but in the very phase IV (in the end of this period – phase IVb – the ratio for females between crouched and extended position was 13 to 2).

The practice of symbolic burials continued over phase IV but then the stone features clearly marked the burial chamber, which contained grave goods but not a skeleton. The content of grave goods was identical to the one found with the inhumations.

Orientation of the bodies. Seemingly, the alignment of the bodies did not change; the north-south alignment was preserved. Deviations from the main direction (unlike the Hamangia III phase) are negligible; only 10,2% of the skeletons were aligned to NNE rather than to the north, and 5,7% to the NNW, and the deviation did not exceed 15–20°. However, the change should be related to the main landmark (and the religious reasoning, accordingly) of this alignment. Unlike in the previous period, when the main landmark was the then-inhabited settlement area, now the alignment was not related to the houses of the living since the settlement had been relocated to about two hundred meters eastwards, to the Golemiya ostrov island, and thus remained to the northeast of the cemetery. The bodies kept their alignment to the abandoned settlement. It is quite possible that in this very period the idea of the "ancestral land" took shape; initially it had been associated with the oldest settlement remembered and eventually had been mythologized. Orientation with head to N/NE applied later for the whole Varna culture and this was from the same direction that the bearers of the Hamangia culture had come: they took an active part in its establishment.

Grave goods

Contents. Major transformations in the grave goods contents took place over the last phase of the Hamangia culture. Most of all, these changes concerned the common elements of the previous stages. The custom of laying parts of grazing animals in the grave gradually faded away. No animal skull is found in phase IV burials. Teeth are found in eight graves, and animal bones in three. Only 6,2% of the phase IV burials contain animal bones. Sherds of storage vessels (another common element for the grave goods over the previous period) are completely absent. The part of intentionally broken vessels put in graves sharply decreased. It became common to put unbroken vessels in the grave pits. Pottery especially made for funeral offerings came to use; it was much worse fired than normal pottery. Together with the earlier known shapes (which of course evolved) new ones appeared. These are the conical dishes on high pedestal and the pot-stands (which appeared in phase III). It seems that in the beginning of their use as grave goods, the conical dishes on high pedestal have been mostly put in female graves, while the pot-stands in male. Combined use of both items was common for both sexes. By the end of phase IV, the combined use of both items became a common element, with priority mostly in male burials.

Gradual sexual differentiation could be traced in a number of other elements of the grave goods. As a female type of grave goods one can assume the so-called "sewing kit", which comprises a flint tool, a bone awl, a pebble polisher and (but not in all cases) a mussel shell, all these contained in a necked carinated jar with a lid. Copper decorations such as bracelets, rings, beads, and rings encircling the front teeth appeared. Finger-rings and teeth-rings were used mainly by women while for men they were rather an exception.

Battle-axes made of antler[10] also came into use in this phase. They are found predominantly in male burials, and can be assumed as distinctive mark of warriors. In three cases, however, battle-axes were found in female burials. Two of the skeletons in these graves were extended on the back and one was crouched on the right side.

Arrangement of the grave goods. The layout of the goods in the grave also began to follow certain rules, ever clearer and strictly defined. The vessels were placed mainly around the head of the deceased. The favored place was just behind the neck although they could be put on the right or on the left side of the head. Usually, when a cluster of vessels was present in the grave most of them were behind the neck, and only one or two were beside the head. With the crouched on the right side female burials, the vessels were in front of the face while with male burials (extended on the back), the left side of the head was preferred. With extended on the back female burials, the vessels were placed on both sides of the head. Another often-sported combination of the vessels layout was either behind or around the head and also next to or upon the chest (with the crouched burials, in front of the chest; with extended on the back burials, equally beside or upon it). Very seldom the vessels were in the midriff. The cases when the vessels have been situated (entirely or partly) in the lower part of the body were exceptions. The custom of putting grave goods in or upon the backfill of the grave extinguished. In phase IV, a single similar case was found. The exceptions in grave goods layout are found in burials where the body position also leaves the usual routine for phase IV – slightly flexed on the back (grave № 29) and extended on the back with hands over the pelvis (grave № 216). Therefore, it can be assumed that in these cases the buried individuals were strangers.

The tradition of putting small pots in the hand (or between the hands) of the dead survived. In a number of cases, the vessel held in the hands was positioned next to the chin or in front of the face. The practice of putting artifacts into a vessel survived, too. Besides the common for this purpose dishes, deep bowls covered with a lid came into use in this phase containing the so-called sewing kits.

The tools made of stone, flint, bone or antler were also positioned in the upper part of the body. The preferred position of the artifacts was on the left side: upon the chest, next to the shoulder or to the hand.

Like in normal burials, the grave goods in the cenotaphs were clustered mostly in the northern part of the burial chamber.

The analysis made show that the changes in the mortuary practices in the end of the Hamangia culture were determined by two clearly visible trends. The first was the tendency to self-identification. On the one hand, it is visible in the survival of the ancient traditions in the basic elements of the rites: burial features, alignment of the body, treatment of the body, and arrangement of the grave goods. On the other hand, however, all these elements were reconsidered; the rites were detailed and standardized. Thus, mortuary practices specific for the local population were established. This trend was reflected in the sexual differentiation (unknown so far at the cemetery as well as at the cemeteries of neighboring cultures) of a number of elements of mortuary practices: inhumation mode, use of differ-

ent kinds of stone features, certain components of the grave goods[11]. What is interesting is that the then-common practice of females buried in crouched on left side position (quite popular in neighboring cultures as well) was abandoned in favor of the less frequent medium flexed position on the right side. In this way women were also differentiated by the body position from the neighbour areas where in the Middle and Late Chalcolithic flexed on the left side position dominated: Polyanitsa (Middle Chalcolithic), medium flexed on the left side; Vinitsa, medium and tightly flexed on the left side; Radingrad, flexed on the left side; Golyamo Delčevo, flexed on the left side; Kubrat, Tărgovište, flexed on the left side[12]. With male burials, the specific for the Durankulak settlement position with arms tightly bent in the elbows along or upon the chest dominated. It was the only cemetery where slab stones had been used in the arrangement of the burial chamber.

Another process is also obvious, which should be related to the idea of self-identification, opposite to the sexual differentiation. This is the separation of a cluster of female burials retaining the traditional mode of inhumation: extended on the back. In this case mixing of features typical for male and female burials is visible, i.e. the tradition of the previous phase survived. In some of these burials the practice of putting jaws of grazing animals lasted longer (graves № 17, 29). Most likely, these were women with ancient local genealogy bearing the idea of the "female ancestor". This tradition survived in the Varna culture (graves № 165, 375, 623, 661) although in somewhat limited extent. Evidence for this is also found in the other cemeteries of the culture: Devnya (grave № 6)[13], and Varna (graves № 116, 126, 146)[14]. It is possible that these women, along with some of the men, formed a kind of "social elite" based on family tradition.

The second trend clearly shaped by the end of the Hamangia culture and the transition to the Varna culture is the increasing importance of the individual rather than the community. This trend is reflected not only in the sex-and-age differentiation (besides the inhumation mode also presented in the vertical stratigraphy of the burials) but in a number of other elements: the diversity of types and arrangements of the burial features (corresponding to the diversity of house types in the settlement); the increased number of artifacts bearing information about the social status (and possibly the occupation) of the person (e.g. the battle-axes made of antler, the sewing kits); the establishing of specific female decorations – rings, copper teeth-foils etc. Separate burial complexes were formed, perhaps on the ground of family relations.

All of the changes that originated in the end of the Hamangia culture (arrangement of the funeral features, vertical stratigraphy by sex-and-age criteria, strictly fixed body positions for men and women, contents and layout patterns of the grave goods) were finally established and fully accepted in the beginning of the Varna culture. The mortuary practices became highly standardized and the exceptions were negligible.

The changes in the funeral rites of the Hamangia culture over its final phase evidently display the profound social, spiritual and to a certain extent ethnical shift that took place in this period. These changes were partially due to the internal development of the community but also to its contacts with the neighboring cultures (including direct diffusion of

population most often as a result of exogamic marriages) and hence to the mutual influence in the spiritual and material sphere. The integration processes in the region of the Black sea coast in the middle of the fifth millennium BC resulted in the arise of the Varna culture, to the genesis of which the tribute of the Hamangia people had been more than significant.

[1] **H. Todorova** (Hrsg.). Durankulak, Bd. II. Die Prähistorischen Gräberfelder von Durankulak, T. 1, 2. Sofia–Berlin, 2002.

[2] In this article, the physical anthropology determination of sex is used. I think that the so-called *archaeological determination* in the cemetery publication (**H. Todorova**. Die archäologische Geschlechtsbestimmung. – In: **H. Todorova** (Hrsg.). Durankulak, Bd. II..., T. 1, S. 53–59) is inapplicable to the Hamangia culture because it is based on another culture namely the Varna culture. The evidence from the Cernavodă cemetery demonstrates that both males and females have been buried in extended position (**D. Berciu**. Cultura Hamangia, t. 1. Bucureşti, 1966, p. 81–82). In the Durankulak cemetery, around 80% of the individuals were buried extended on their backs in the Hamangia I and II phases, and less than 20% were in crouched position; i.e. according to the so called *archaeological determination* females in these phases were less than 20% (**H. Todorova**. Die archäologische…, S. 59, Abb. 45).

[3] The burials in crouched position should be related to people inhabiting regions to the south and west of the Hamangia area and most of all with exogamic relations with these people; that is why this position is attested mainly for women (**Я. Бояджиев**. Развитие на погребалния обред от култура Хаманджия към култура Варна в некропола при Дуранкулак. – Във: **В. Николов** (ред.). Тракия и съседните райони през неолита и халколита. София, 2000, с. 77).

[4] **Я. Бояджиев**. Ориентация на мъртвите през късния неолит и ранния енеолит в Долнодунавския район. – ГНАИМ (под печат).

[5] **D. Berciu, S. Morintz**. Săpăturile de la Cernavoda. – Materiale şi cercetări archeologice, V, 1959, p. 99; **G. Cantacuzino, S. Morintz**. Die jungsteinzeitlichen Funde in Cernica (Bukarest). – Dacia NS, VII, 1963, S. 57; **H. Todorova**. Kupferzeitlichen Siedlungen in Nordostbulgarien (=MAVA, XIII). München, 1981, S. 163–165.

[6] For more details see **M. Avramova**. Der Schmuk aus den Gräbern von Durankulak. – In: **H. Todorova** (Hrsg.). Durankulak, Bd. II..., T. 1, S. 191–206.

[7] Differentiation of "male" and "female" grave goods in the Hamangia I–III phases (**H. Todorova**. Die archäologische…) was made not after the physical anthropology sexing but after the skeleton position: extended or crouched. As already mentioned (see notes 2 and 3), the position of the buried body (especially extended on the back position) in the Hamangia culture is not a reliable sex marker. Concerning the differentiation of "male" or "female" grave goods in Hamangia I–III, I shall only point out that out of the eight graves declared as most representative male burials – the so called *Hauptlingsgraber* (**H. Todorova**. Die Sozialstruktur im Licht der Auswertungsergebnisse. – In: **H. Todorova** (Hrsg.). Durankulak, Bd. II..., T. 1, S. 272) – five graves (№ 49, 607, 609, 611, 644) belonged to females, one (№ 648) has not been sexed and only two belonged to males (**H. Todorova, T. Dimov, J. Bojadžiev, I. Vajsov, K. Dimitrov, M. Avramova**. Katalog der prähistorischen Gräber von Durankulak. – In: **H. Todorova** (Hrsg.). Durankulak, Bd. II..., T. 2, S. 61–63).

[8] **Я. Бояджиев**. Гробни съоръжения от халколитната епоха от некропола при с. Дуранкулак. – ГНАМ, I, 2001, с. 108–109.

[9] **Y. Boyadžiev**. Chalcolithic Stone Architecture from Bulgaria. – ArchB, 2004, p. 10–11.

[10] Typologically, the horn artifacts from the prehistoric cemetery can be classified as "axes" (tools whose cutting edge is parallel to the longitudinal axis) and "mattocks" (with cutting edge perpendicular to the longitudinal axis). In the catalogue of the graves, only one artifact is specified as a "mattock" (№ 762). However, it is identical to the items from burials № 426, 439, 663, etc., which are specified as

"axes". Functionally, the so-called mattock can be easily used as a battle-axe while the small diameter of the shaft-hole makes its usage as a mattock quite unlikely.

[11] It seems that the idea of sexual differentiation in the funeral rites was also a result of reaching certain stage of economic, social and spiritual development since not much later (by the end of the Chalcolithic and the Transitional period to the Bronze Age) it appeared in a number of other cultures in Europe: Tiszapolgar and Bodrogkeresztur (**I. Bognar-Kutzian**. The copper age cemetery of Tiszapolgar-Basatanya. Budapest, 1963); Aunjetitzer, Glockenbecher, Zlota, Schnurkeramik, etc. (**A. Häusler**. Geschlehtsdifferenzierte Bestatungssitten im Neolithikum und in der frühen Bronzezeit Mitteleuropas. – Saeculum, 41, 1991, 3/4, p. 332–348).

[12] **Н. Todorova**. Kupferzeitlichen Siedlungen..., S. 163–165; **А. Радунчева**. Виница. Енеолитно селище и некропол (=РП, VI). София, 1976, с. 69–98; **Т. Иванов**. Многослойное поселение у с. Радинград Разградского района. – StP, 7, 1984, с. 96; **Х. Тодорова, С. Иванов, В. Василев, М. Хопф, Х. Квита, Г. Кол**. Селищната могила при Голямо Делчево (=РП, V). София, 1976, с. 53–64; **В. Миков**. Селищната могила при с. Балбунар. – ИБАИ, IV, 1926/1927, с. 279–282; **И. Ангелова**. Праисторически некропол при гр. Търговище. – ИИ, XIV A, 1986, с. 49–66.

[13] **Х. Тодорова-Симеонова**. Късноенеолитният некропол край гр. Девня. – ИНМВ, VII, 1971, с. 6–7.

[14] **N. Egami, T. Hayashi, A. Hori (**eds). The First Civilisation in Europe and the Oldest Gold in the World – Varna, Bulgaria. Tokyo, 1982, p. 118–120.

ПРОМЕНИ В ПОГРЕБАЛНИЯ ОБРЯД ПРИ ПРЕХОДА ОТ КУЛТУРА ХАМАНДЖИЯ КЪМ КУЛТУРА ВАРНА

ЯВОР БОЯДЖИЕВ (СОФИЯ)

Проучените в праисторическия некропол край с. Дуранкулак 1200 гроба, оставени в продължение на близо 1000 години от носителите на две култури – Хаманджия и следващата я Варна, дават възможност да се проследят етнокултурните процеси в района на Добруджа от края на VI до началото на IV хил. пр.Хр. Те са най-ясно отразени в погребалния обред, във всички елементи на който през последната фаза на култура Хаманджия настъпват значителни промени.

I. *Разположение на погребенията*. По време на фаза Хаманджия IV некрополът се измества в южна посока, по склоновете към речното корито.

II. *Погребални съоръжения.* Преобладават двуделни гробни ями, като с каменни плочи се оформя погребална камера. Започва полово-възрастово разграничение при дълбочината на гробовете – най-плитко са децата, най-дълбоко – мъжете.

III. *Положение на трупа*. Основните пози, в които се полагат мъртвите – изпънат по гръб, хокер наляво и хокер надясно – се запазват. Засилва се обаче разграничението по полов признак. При мъжете се налага фиксирано положение: изпънати по гръб, ръцете силно свити в лактите. При жените се запазва разнообразието в начина на трупополагане, но рязко намаляват изпънатите по гръб. Доминираща поза става свитата, като за разлика от предходните етапи водещо място заема не левият, а десният хокер, при което те са предимно силно свити.

Ориентацията на погребаните по линията С–Ю се запазва. Докато за предходния период некрополът е ориентиран спрямо селището, в края на културата Хаманджия то се е изместило на около 200 метра в източна посока, но про погребването се запазва ориентацията на телата спрямо по-ранното селище.

IV. *Погребален инвентар*. Промените засягат характерните за предходните етапи елементи. Отмира обичаят да се поставят останки от тревопасни животни. Рязко намалява процентът на предварително фрагментираните съдове, положени в гроба. Налага се практиката при мъртвите да се поставят цели съдове, някои специално предназначени за погребален дар. Появяват се съдове с нови форми. Започват да се полагат бойни брадви от еленов рог – най-вече при мъжете, но понякога и при жени. Сред украшенията се появяват тези от мед, като при използването им личи полова диференциация – пръстените и пластинките около зъбите са използвани от жените.

Местоположението на инвентара започва да се подчинява на все по-ясно определени и строго регламентирани правила. Съдовете се разполагат основно около главата на мъртвия. Оръдията на труда също са полагани от кръста нагоре. Ясно изразено е предпочитанието те да са от лявата страна – върху гърдите, около рамото и до ръката.

Всички промени, започнали в края на култура Хаманджия се налагат в началото на култура Варна. Погребалният обряд става максимално стандартизиран, а изключенията от него са незначителни.

Извършващите се в края на култура Хаманджия промени в погребалните практики се определят от две тенденции. Първата е стремежът към самоидентификация, при който от една страна се запазва традицията в основните елементи на обряда. От друга страна обаче, всички те се преосмислят, ритуалът се детайлизира и стандартизира. При това посоката е към обособяване на специфични за местното население погребални практики. Резултат от именно тази тенденция е постепенното налагане на полова диференциация. Запазва се специалното отношение към определена група жени, които продължават да се погребват по традиционния начин (изпънати по гръб), а инвентарът включва предмети, характерни както за жените, така и за мъжете. Изглежда, именно в тях се въплъщава идеята за майката-прародителка, пазителка на родовите традиции.

Другата тенденция е засилване на значението на индивида за сметка на колектива. С нея може да се свърже както настъпилата полово-възрастова диференциация, така и редица други елементи от обряда: разнообразието във вида и устройството на погребалните съоръжения; използването в погребалния инвентар на предмети, символизиращи общественото положение/занятие на индивида; обособяването на типично женски украшения.

Промените в погребалния обряд на култура Хаманджия през нейния финален етап отразяват дълбоките промени – етнически, социални, духовни – извършващи се по това време. Интеграционните процеси, извършващи се в района на черноморското крайбрежие в средата на V хил. пр.Хр., водят до формирането на култура Варна, в чийто генезис носителите на култура Хаманджия имат съществен принос.

NEW AMS RADIOCARBON DATES FOR THE VARNA ENEOLITHIC CEMETERY, BULGARIAN BLACK SEA COAST

TOM HIGHAM (OXFORD), JOHN CHAPMAN (DURHAM), VLADIMIR SLAVCHEV (VARNA), BISSERKA GAYDARSKA (DURHAM), NOAH HONCH (OXFORD), YORDAN YORDANOV (SOFIA), BRANIMIRA DIMITROVA (SOFIA)

Introduction

The Varna cemetery was discovered by accident in 1972 in the Black Sea coastal city of the same name. An area of 7500 m^2 yielded 294 graves (fig. 1) dating to the Eneolithic (Copper Age) period. What marked the site as truly significant was the large accumulation of gold objects recovered. Over 3000 objects of a wide range of design and weighing more than 6 kg were excavated. The excavator of the site, Ivan Ivanov claimed the material dated to the 5th millennium BC, and was therefore the earliest evidence for goldwork in the world[1]. In addition to the goldwork, the grave goods included 160 copper objects, more than 230 flint artifacts, about 90 stone objects, and more than 650 clay products, as well as over 12000 *Dentalium* shells and about 1100 imported *Spondylus* shell ornaments (bracelets, necklaces and appliqués). Amongst the burials were 43 graves with no human remains. Some of these so-called "cenotaph" graves contained clay masks with gold objects placed strategically on the location of eyes, mouth, nose and ears. Although the specific social structure underpinning theVarna I cemetery is disputed – from early state formation[2] to chiefdom[3] – there can be little doubt of the hierarchical nature of the social relations that resulted in such a massive accumulation of exotic prestige objects[4].

The excavations of what became known as the Varna I cemetery continued into the 1990s but a full publication of the site and its archaeological finds is still awaited. The vast majority of the graves contained pottery stylistically dated to the later phases of the Late Copper Age Varna culture – the so-called Varna II–III phases[5]. These phases are dated at other sites to the general time range 4600–4200 cal. BC[6]. However, the paucity of accurate 14C dates from the Golemiya Ostrov tell at Durankulak means that there are no closely dated settlements of the Varna culture which can be used to provide parallel dates for the Varna I cemetery. The relative dating of the grave goods would necessarily rely on typological parallels from other regions, with their own specific cultural developments, none of which would provide sufficient accuracy for dating the cemetery. The question of regional and inter-regional chronological relations between Varna I and other areas has therefore remained open.

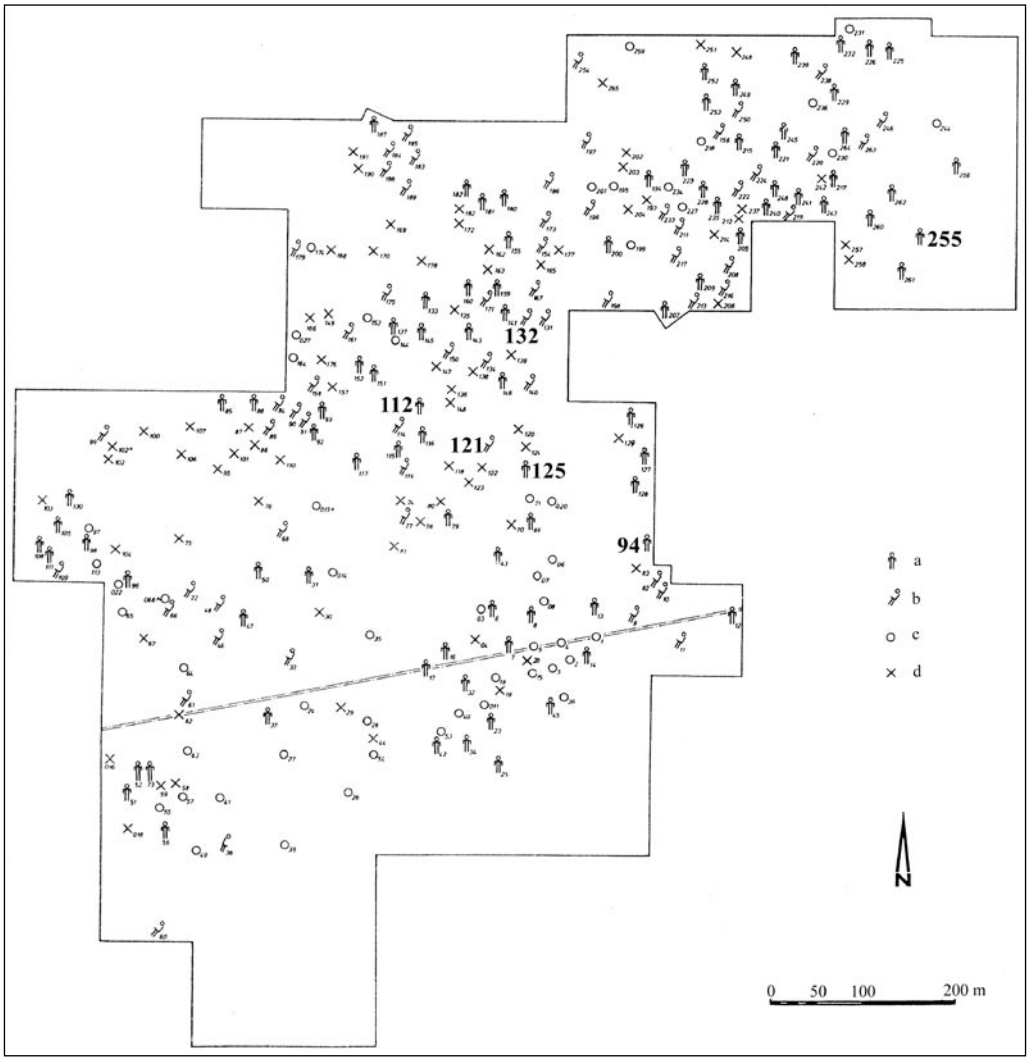

Fig. 1. Plan of the Varna I cemetery: a – extended inhumations; b – contracted inhumations; c – symbolic graves (cenotaphs); d – damaged or destroyed burials. Those for which we have obtained AMS radiocarbon dates are asterisked

We have obtained a large number of human bones from the Varna I graves for AMS radiocarbon dating and palaeodietary analyses using stable isotopes of carbon and nitrogen. The palaeodietary work will be reported elsewhere[7]. The bones were collected in late 2003 and again in mid-2004 from the Institute of Experimental Morphology and Anthropology, Sofia. The radiocarbon dates reported here constitute the first AMS dates for the Varna I cemetery.

The AMS dating project

In late 2003, we began a joint initiative between the Archaeological Museum of Varna, which houses the cemetery finds, the Oxford Radiocarbon Accelerator Unit (ORAU) and the Department of Archaeology at Durham, to obtain an initial series of AMS dates from the Varna I cemetery. Long bones from six graves were transported to Oxford, where they were pretreated and AMS dated in 2004.

The initial choice of samples for dating was based upon two principles: first, the availability of well-preserved long bones and, secondly, the investigation of graves in different zones of the cemetery. We selected samples from graves in the eastern, central and northern parts of the cemetery (fig. 1). At this time, samples from the core cemetery, comprising several graves with substantial and diverse grave goods, were not available, but that is no longer the case.

Human long bones from Graves 94, 112, 121, 125, 132 and 255 were initially dated. Five of the six samples yielded AMS results. The bone from Grave 132 contained insufficient collagen and this was not dated. In 2004 we sampled a further eight bones for AMS dating, as well as over 100 human skeletons for stable isotope analyses and a small number of animal bones from some of the burial contexts (see Appendix).

Methods: radiocarbon dating. Bones were prepared using the method outlined in Bronk Ramsey *et al*.[8] They were cleaned by scraping with a scalpel to remove soil detritus, or shotblasted with aluminium oxide to dislodge soil matter and sediment. Between 500 mg–1 gram of bone powder was then drilled from the bones. The whole bone was decalcified with ~10 mL of 2% v/v HCl in a test tube over 1–2 days. Following this, the collagen was washed with NaOH and then HCl, interspersed with MilliQ water rinses. Each sample was gelatinised in weakly acidic water (pH3) at 75°C for 21 hours and the supernatant was recovered using an EziFilter™. The soluble gelatin was ultrafiltered using a Vivaspin 30 kD ultrafilter, and freeze-dried. Samples of bone gelatin were combusted and mass spectrometrically analysed at ORAU using a CHN analyser interfaced with a Europa 20–20 mass spectrometer operating in continous flow mode. This enables the measurement of $\delta^{15}N$ and $\delta^{13}C$, nitrogen and carbon content and C:N ratios. $\delta^{13}C$ values in this paper are reported with reference to VPDB and $\delta^{15}N$ results are reported with reference to AIR[9]. AMS measurements were determined on either CO_2 or graphite, depending upon sample size[10].

Because of the acidic nature of the soil at the Varna cemetery, many of the skeletal remains were in poor condition. Their friable and fragile condition caused problems in the definition of grave floors at the time of excavation and has frequently rendered age and sex determination problematic. We assessed the preservation of the Varna bone through a number of analytical variables. One was the extractable collagen yield. Poorly preserved bone is low in collagen. According to R. E. M. Hedges, G. J. van Klinken[11], bone of "good preservation" has >20% of the original collagen remaining (based on a modern value of 200mg collagen/g of dry bone), though a high yield does not necessarily ensure the integrity of the protein[12]. "Poor preservation" refers to bones in which <10%

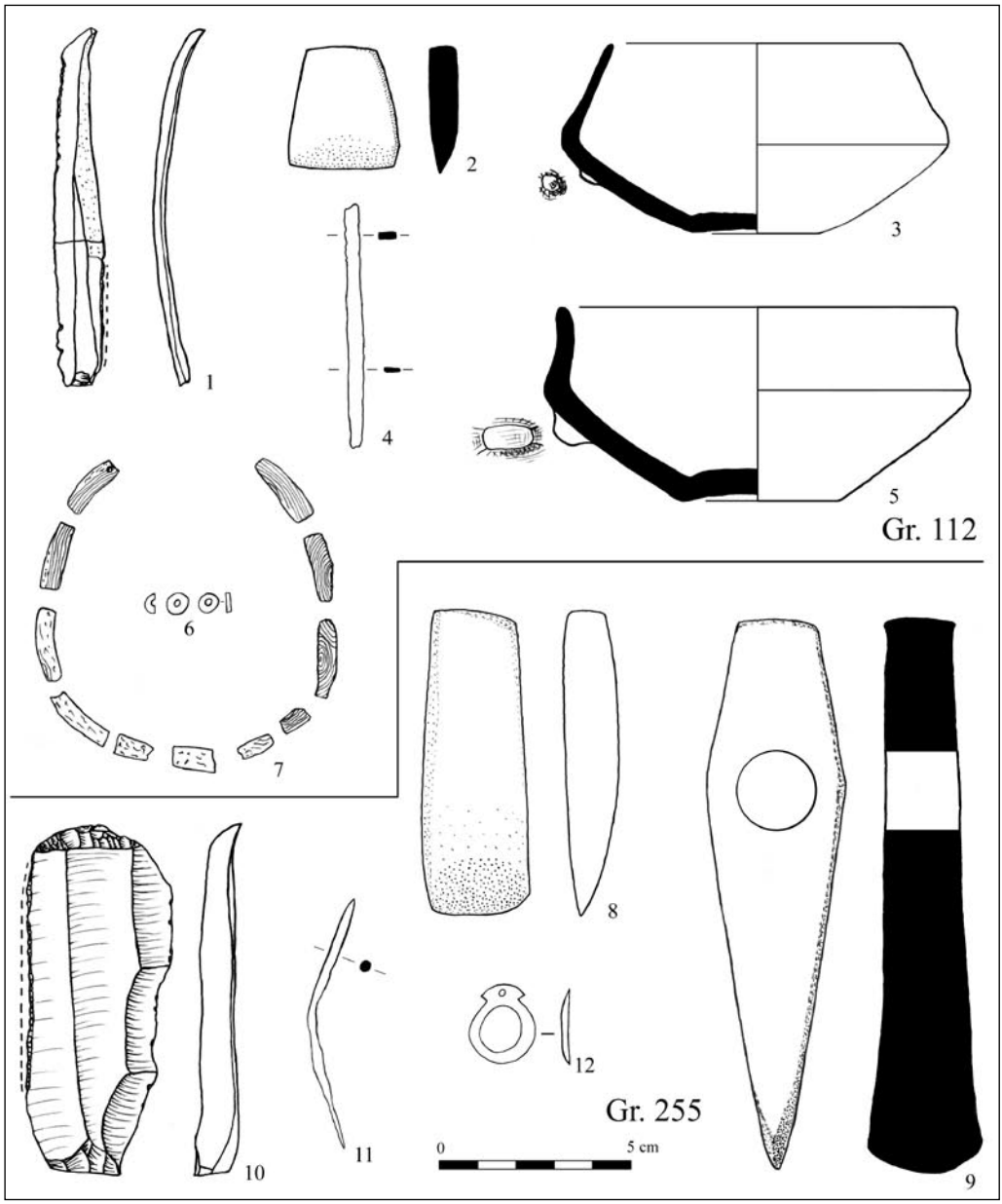

Fig. 2. Selected grave goods from Graves 112 (1–7) and 255 (8–12): 1, 10 – flint; 2, 8 – stone; 3, 5 – clay; 4, 9, 11 – copper; 6 – metamorphosed ultrabasite; 7 – *Spondylus*; 12 – gold

of the original collagen remains. Bone which is <1 wt.% collagen is not dated at Oxford. In the case of Varna, the bone preservation ranged from 1,2 to 3,7%. C:N atomic ratios ranging from 2,9–3,5 are acceptable for radiocarbon and stable isotope analysis. The bones we initially dated had CNs that ranged from 3,0 to 3,2, which are all acceptable. We attribute this to the ultrafiltration methods we use, which retain undegraded collagen fragments, and remove low molecular weight material that may have a different ratio of carbon to nitrogen.

The AMS results are shown in table 1. Calibration using the INTCAL98 dataset[13] and the OxCal 3.6 computer programme produced calendar ages between 4600–4400 BC (fig. 3). The first five dates were sampled in Varna in late 2003 and dated in 2004 at ORAU, the remainder were collected in May 2004 from a wider range of burials from previously unsampled areas such as Area E (fig. 1). Asterisked stable isotope values were obtained during the radiocarbon process, while all others were obtained during palaeodiet mass spectrometric analyses[14], of these, Graves 43, 94, 215 and 255 were analysed in duplicate and 11, 44 and 225 in triplicate.

Table 1. Human bone AMS dates from the Varna necropolis. Stable carbon isotope values are expressed with reference to VPDB and nitrogen with respect to AIR. Analytical error for carbon is ±0,2‰ and for nitrogen ±0,3‰. See text for discussion of analytical parameters

Reference	OxA №	Radiocarbon age BP	$\delta^{13}C$ (‰)	$\delta^{15}N$(‰)	C:N ratio	Wt. % coll	Pretreat. yld (mg)	% carbon
Burial 94	13250	5626 ± 31	-19,3	10,0	3,2	3,7	26,1	42,8
Burial 112	13251	5702 ± 32	-18,6	10,5*	3,1	1,2	9,4	39,9
Burial 121	13252	5672 ± 34	-18,9	9,7*	3,2	1,4	7,6	36,1
Burial 125	13253	5685 ± 33	-18,6	9,9*	3,0	3,0	19,6	43,0
Burial 255	13254	5732 ± 33	-18,6	10,4	3,2	2,5	14,2	44,3
Burial 43	13685	5720±29	-18,5	11,0	3,2	31,6	5	44,7
Burial 11	13686	5639±32	-19,3	10,4	3.2	13,1	2,5	44,9
Burial 10	13687	5569±32	-19,1	11,4*	3,2	5,0	0,9	41,9
Burial 158	13688	5787±30	-18,9	9,8	3,3	11,0	2	42,7
Burial 215	13691	5668±32	-19,8	10,8	3,2	6,5	1	42,9
Burial 44	13692	5657±30	-19,1	10,8	3,2	23,6	4	43,6
Burial 225	13693	5660±29	-19,8	9,1	3,2	30,0	5,5	43,8
Burial 137	13694	5654±36	-19,8	10,9*	3,2	35,1	5,8	44,8

One question that arises over the accuracy of these human bone dates is the possibility of a marine reservoir effect from the Black Sea or, indeed, the uptake of depleted 14C from aquatic or freshwater fish[15]. The uptake of marine protein by humans can result in offsets from "true age" since the concentration of radioactive carbon in oceanic reservoirs is not in equilibrium with the atmosphere. Indications are that the

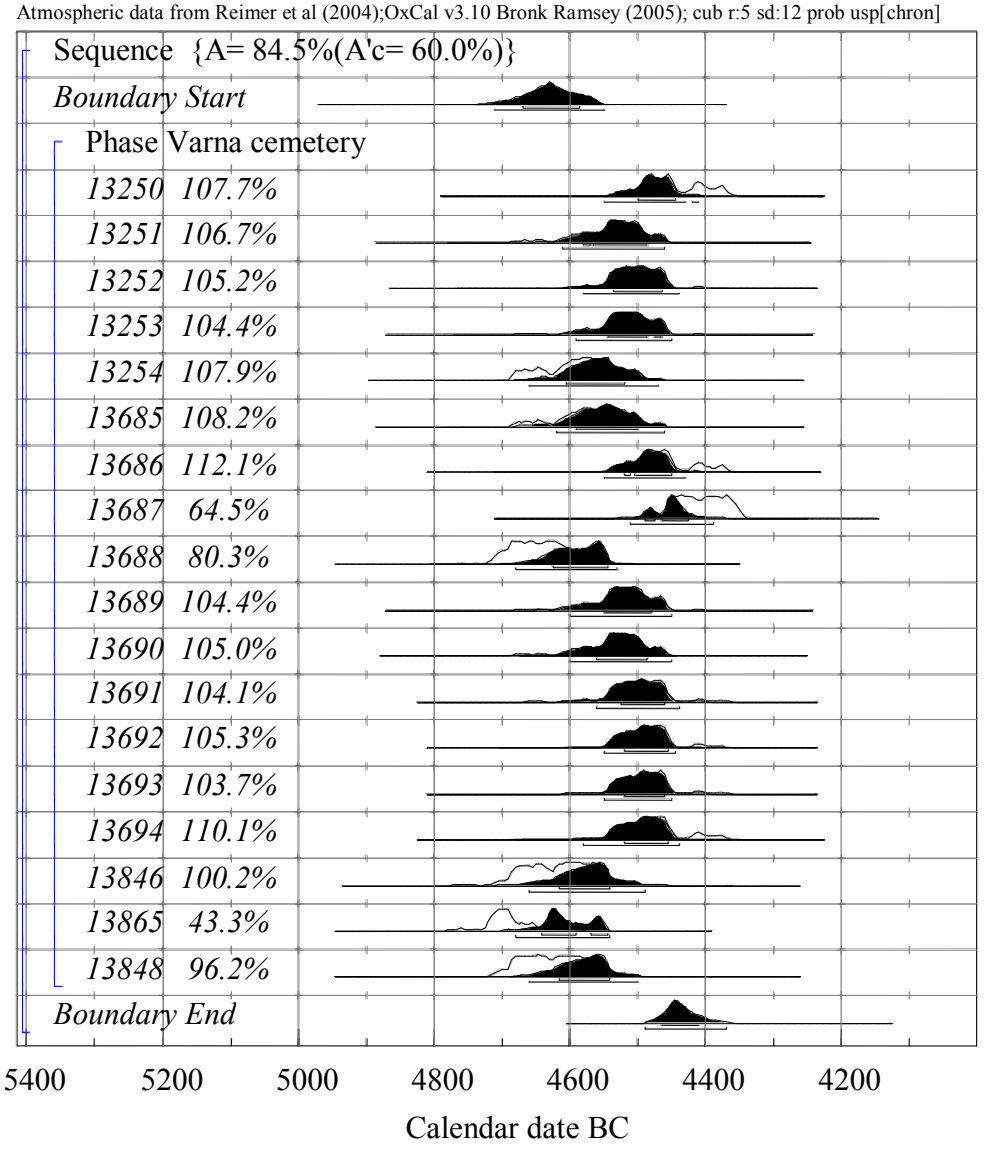

Fig. 3. Calibration model for the human and animal bone AMS determinations from the Varna I cemetery (with the exception of OxA-13811, see text). The outline distributions show the likelihoods derived only from the calibration of the radiocarbon dates. The solid distributions show the results when the stratigraphic constraints are imposed. The bars underneath the distributions show the 68,2 and 95,4% ranges from the analysis. The likelihoods are modelled as a single phase of activity. The agreement index (84,5%) indicates that there is acceptable agreement for every determination within the model, with the exception of OxA-13865, which produced a low agreement index. One in twenty determinations would be expected statistically to produce a low index. OxA-numbers are shown next to the agreement indices (table 2)

Table 2. Further human bones dated from the Varna necropolis. δ15N values are reported in ‰ wrt AIR. Burials 44 and 225 were analysed for δ15N in triplicate, burial 11 was analysed 4 times, burials 43 and 215 twice, and burial 158 once. Multiple analyses were averaged. Burials 10 and 137 were not measured for nitrogen isotopes

Burial №	OxA №	Radiocarbon Age BP	$\delta^{13}C$	$\delta^{15}N$	CN	Weight (mg)	Pret yld. (mg)	Wt. % coll	**% carbon**
43	13685	5720±29	-18,4	11,0	3,2	620	31,56	5	44,7
11	13686	5639±32	-19,5	10,4	3,2	520	13,1	2,5	44,9
10	13687	5569±32	-19,1	n,d	3,2	540	4,97	0,9	41,9
158	13688	5787±30	-19,3	9,8	3,2	540	11,03	2	42,7
215	13691	5668±32	-19,6	10,8	3,2	600	6,47	1	42,9
44	13692	5657±30	-19,6	10,8	3,2	580	23,62	4	43,6
225	13693	5660±29	-20,0	9,1	3,2	540	29,96	5,5	43,8
137	13694	5654±36	-19,8	n,d,	3,2	600	35,08	5,8	44,8

reservoir effect in the Black Sea is of the order of 380 years[16], although the dataset is not extensive. Freshwater and aquatic fish can also contribute depleted 14C in certain contexts, embracing errors of a similar magnitude. This is often linked with an enrichment in $\delta^{15}N$ values in bone.

We dated terrestrial animal bone and human bones excavated from within the same burial context to determine whether there was an offset between the two which could indicate reservoir effects. This was undertaken in tandem with a large investigation of human palaeodiet using stable carbon and nitrogen isotopes, undertaken by N. Honch[17] and to be published separately[18]. Unfortunately, we could only obtain human/animal paired samples from the same grave context in three cases (Graves 111, 117 and 143: table 3). The condition of many of the bones was poor and fragmented, which hampered identification of the suspected animal bone.

Table 3. Dated human/animal pairs, measured to determine possible reservoir offsets in human bone from the Varna site. The animal bone from Burial 143 is possibly a fragment of human bone, given its isotopic values which mirror those from the human individual. The δ15N values are expressed in ‰ wrt AIR. Burials 111 (human) is the mean of duplicate stable isotope analyses, 143 (animal) and 117 (human) are measured in triplicate and 143 (human) is a single measurement. Burials 111 and 117 (both animals) were not analysed for nitrogen isotopes

Burial №	OxA №	Bone	Radiocarbon age BP	$\delta^{13}C$	$\delta^{15}N$	CN	Weight (mg)	Pretreatment yld (mg)	Wt% coll	**% carbon**
111	13865	Human	5855 ± 34	-18,3	11,3	3,2	720	58,86	8,2	43,8
111	13846	Animal	5757 ± 34	-19,4	n,d,	3,2	680	16,49	2,4	42,8
117	13848	Human	5766 ± 36	-19,0	10,2	3,2	680	18,57	2,7	42,4
117	13811	Animal	5530 ± 36	-20,2	n,d,	3,3	620	3,22	0,5	41,8
143	13689	Human	5690 ± 32	-19,7	9,7	3,2	620	6,55	1,0	43,0
143	13690	Animal	5700 ± 30	-19,7	10,1	3,2	680	17,87	2,6	43,1

A comparison of the AMS results suggests a low probability of a substantial reservoir effect in the Varna I humans. Two of the three pairs we analysed disclosed no statistically significant difference between the animal and human bones dated. The third sample produced a significant difference, with the human bone date (OxA–13848) older than the animal bone sample from the same context by c. 200 years. In this case, however, the collagen extracted from the animal bone was lower than the acceptable threshold of 1%. There is a possibility therefore that the age is slightly younger because of the lower yield and the increasing influence of background contamination from the environs of the site. The results from Grave 143 produced statistically indistinguishable radiocarbon results, but the values for the carbon and nitrogen isotopes indicate the possibility that the animal bone might in fact be human. The $\delta^{15}N$ and $\delta^{13}C$ values for the purported animal bone are identical to its human pair. Further evidence is required before firm conclusions can be reached, but the present carbon isotope data suggests no significant marine protein in the diet of the Varna humans and a low probability of offset from true age due to reservoir effects. The stable isotope evidence for the other dated humans supports this. Our values for human carbon and nitrogen isotopes suggest a terrestrially-dominated diet, with $\delta^{13}C$ values averaging –19,1 (s.d 0,5) and $\delta^{15}N$ averaging 10,3 (s.d 0,6). One problem with evaluating the contribution of marine food and, indeed, aquatic fish in the diet of the people buried at Varna is the lack of representative subsistence evidence at a mortuary site.

Bayesian analysis. We undertook a Bayesian statistical analysis of the Varna radiocarbon determinations using OxCal 3,10[19] and the INTCAL04 calibration curve[20]. The use of a Bayesian approach allows the incorporation of associated archaeological information within the chronometric analysis in an explicit manner. Stratigraphic constraints can be applied to the calibrated dates in instances where primary contexted material is submitted for radiocarbon dating. This data is made explicit in the analysis via a probability distribution, termed the *prior*, which weights the calibrated dates towards values in line with prior archaeological expectations. If we, as archaeologists, have prior knowledge that sample *x* is beneath sample *y* which is beneath sample *z* in our archaeological site, we can incorporate this super-imposition in our analysis. The data acts through a distribution called the *likelihood*. A calibrated value that makes the observed radiocarbon age a likely outcome of the radiocarbon observation process has a high likelihood. The prior and likelihood distributions together determine a new probability distribution known as the *posterior*. Sets of calibrated dates agreeing with the data, and at the same time plausible in the light of prior information, yield a large posterior probability. Bayesian analysis is performed by constructing a suitable posterior that reflects our understanding of the archaeological record and the temporal relationship between the dated events and those observed in the archaeological record. In instances where we have prior knowledge concerning potential problems with samples (e.g., inbuilt age) we can downweight their significance using "outlier analysis"[21] and consider their posterior probabilities after modelling.

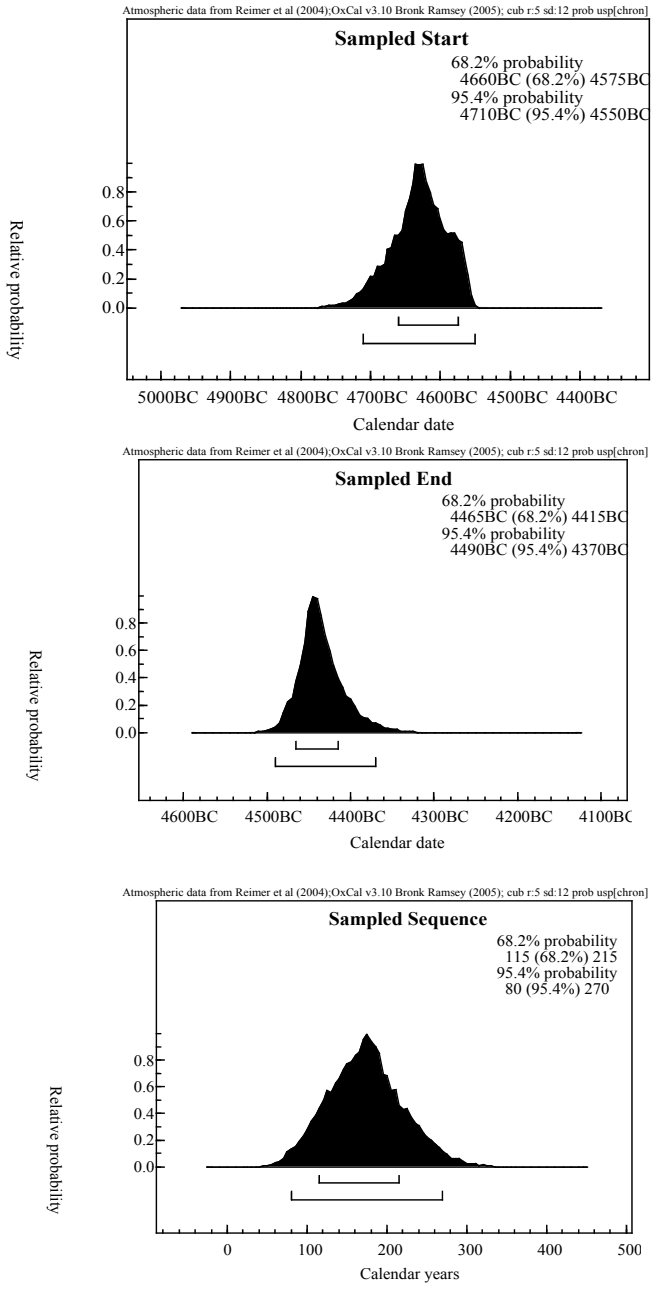

Fig. 4. OxCal probability distributions showing the start and end boundaries of the modelled data shown in fig. 3. The distribution "sampled sequence" represents the overall span of use of the Varna 1 cemetery. See text for details

In the absence of stratigraphic constraints between the dated burials at the Varna cemetery, we initially modelled the entire corpus as a single phase. The results suggest an overall span of cemetery use of 70–155 years (with a highest probability of 110 years) (fig. 4). The probability distribution representing the boundary date prior to the use of the site as a cemetery (equivalent to the *terminus post quem* for Varna cemetery) was 4605–4550 BC (68,2% prob.) with the highest probability associated with 4550 BC. This is equivalent to what has been termed the beginning of the Middle Copper Age in other parts of Bulgaria[22]. The distribution representing the boundary for the end of the use of the cemetery (ie. a *terminus ante quem*) was 4480–4425 BC (again at 68% prob.), with the highest probability of 4450 BC. This is equivalent to what has been termed the end of the Middle Copper Age and the beginning of the Late Copper Age in other areas of Bulgaria[23]. The data upon which this is based is shown in figures 3 and 4. However, the ceramic and metal grave goods at Varna I point clearly to a Late Eneolithic typological date. The absence of fit between the AMS dates and the typological determination of the material culture could be resolved by accepting the notion that material culture is not adopted monolithically across a region or regions but its adoption can be dated to different centuries in different regions. The acceptance of spatially variable transmission of material culture has been documented for the Vinča group in the West Balkans[24] and may well solve Y. Boyadzhiev's[25] supposed "problem" of the overlap between dates for the Middle and Late phases of the Eneolithic.

One variable that has concerned scholars for a considerable time is the question of social inequality in the Varna cemetery[26]. We were particularly interested in considering whether the striking variations in the range and type of personal ornaments at the Varna site occurred at the same time in the cemetery's use-life, or whether they were spread throughout, late, or early in the sequence. In addition, we wondered whether there were chronological differences between the various areas of site, noting particularly the fact that Area E marks the location of the central or core area of rich graves. As mentioned previously, a related project concentrating upon the stable isotope evidence from human bone has focussed upon potential differences in human diet in the cemetery, again with reference to the inferred wealth as indicated by buried artefacts[27].

One obvious problem with this type of chronometric analysis is that we have a small proportion of humans from the cemetery that are dated. We used grave good numbers and varieties of artefact forms (table 1) to separate burials into "rich" and "poor" categories. We then modelled the radiocarbon likelihoods of both groups using OxCal. The results showed higher agreement indices for the groups separated into these categories than they did for all burials modelled as a single phase (fig. 5). The burials containing the widest range of grave goods also yielded the widest span (125–325 years at 68,2% prob.) while those containing smaller numbers or, indeed, no grave goods at all, produced a range of 0–95 years (68,2%), with a highest probability of 40 years. In addition, the "poorer" burials all dated to after 4500 BC, whereas the "wealthier"

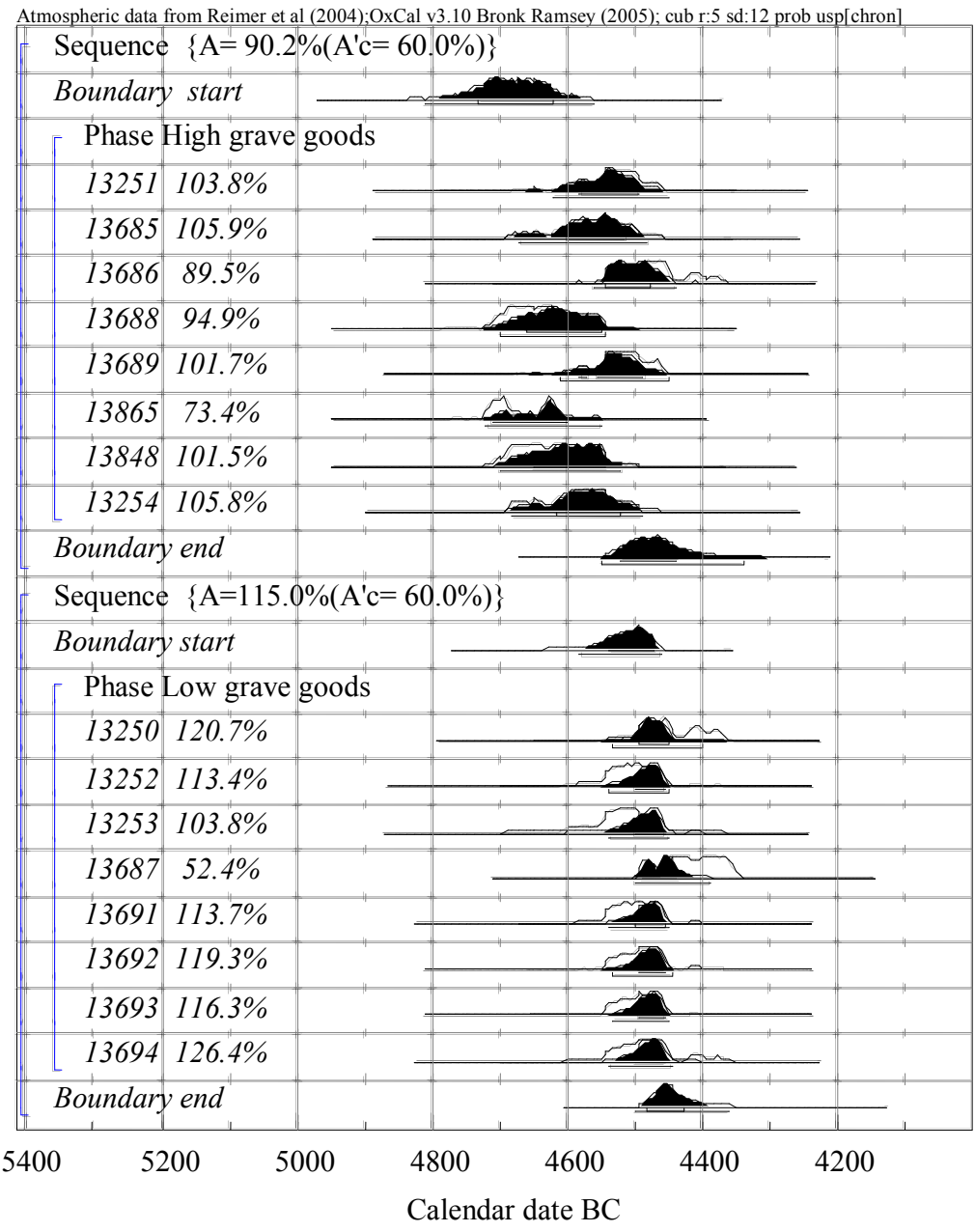

Fig. 5. Bayesian model showing dated humans divided into two phases, on the basis of grave good numbers, into “high” and “low” grave good categories. OxA numbers are listed next to the agreement indices

burials commenced earlier (*terminus post quem*; 4755–4615 BC (68,2% prob.)). More radiocarbon determinations are clearly required before we can be confident that this is indeed a real pattern but the initial suite of results are interesting because they imply that graves with fewer offerings were more common in the later part of the sequence.

The Varna I cemetery in its regional and wider contexts

Many of the artifacts from Varna I have close parallels with other examples in North East Bulgarian sites. These include the Devnya cemetery[28]. There are also close parallels with the Golyamo Delčevo[29] and the Durankulak cemeteries[30]. Finally, similarities are apparent at the Golyamo Delčevo tell site[31] and the Ovčarovo tell[32]. The vessels from Grave 112, the gold pendant and the copper axe-hammer indicate that these graves can be typologically assigned to the last (III) phase of the Varna culture. However, this typological judgment is not necessarily consistent with the results of the AMS dating.

Y. Boyadziev[33] has presented an extensive compilation of radiocarbon dates and an analysis of the chronologies of prehistoric Bulgarian cultures from the Early Neolithic to the Late Bronze Age. He noted the overlap between dates for the Middle and the Late phases of the Eneolithic. He listed several problems in dating cultural sites and phases with confidence. First, many dated sites lack precise stratigraphic details or have limited statistical analysis of pottery remains. Secondly, there were fluctuations in radiocarbon calibration curves that limit calendrical precision. Thirdly, there were differences in radiocarbon concentration between material types, for example, "inbuilt age" of wood charcoal. One good reason for our emphasis on dating human bone is that we can be more confident that inbuilt age effects are reduced (albeit not as confident as we would be dating terrestrial ungulate bones which avoid reservoir uncertainties). Fourthly, difficulties were encountered in determining the span of intervals of time within consecutive strata of multi-layered sites. Fifthly, variable results between different radiocarbon laboratories were occasionally noted. Y. Boyadziev[34] attempted to resolve certain of these problems, including modeling horizon durations, by comparing radiocarbon dates with the then accepted calibration curves outlined in the volume, edited by M. Stuiver and R. Kra[35]. The principal problem with his analysis was that he used estimated rates of deposition for archaeological contexts and then attempted to fit radiocarbon dates from those contexts to the calibration curve fluctuations in the light of the deposition rates. It is very difficult, if not impossible, to estimate time simply from the buildup of archaeological strata. More robust approaches to this type of problem are now more profitably tackled using the kind of probabilistic methods developed by Bayesian statisticians over the last 15 years and described earlier[36]. It is an opportune time, then, to revisit Y. Boyadziev's[37] compiled data in the light of our new results for the Varna I cemetery and compare them with other sites in the wider context. We therefore modelled radiocarbon likelihoods from key Early, Middle and Late Eneolithic sites in the region in the light of stratigraphic criteria to evaluate chronological similarities and differences.

Ovčarovo is the most extensively dated Eneolithic site, covering Early, Middle and Late Eneolithic phases[38]. Phases V–VII belong to the Middle Eneolithic, but our modelling suggests these contexts are slightly older than the earliest phase of use of the Varna I cemetery. Phases VII–VIII are of more similar age (the boundary between VII and VIII, for example, is 4650–4560 BC (68,2% prob.), which is identical to the start boundary of Varna cemetery). Later Eneolithic contexts X–XI at Ovčarovo are in close agreement with the end boundary at Varna, so in general it appears that phases VII–XI parallel the use of the Varna I cemetery most closely in terms of age. At Golyamo Delčevo, the earliest dated contexts are Middle Eneolithic phases III and IV but, according to Y. Boyadziev[39], the samples dated from here are post wood, probably beech, therefore they could be older due to inbuilt age. Late Eneolithic contexts at this site span phases V–XII. Phase V has a *terminus post quem* in our model of 4775–4625 BC, which might again suggest that the radiocarbon chronology from here is slightly influenced by possible inbuilt age on charcoal samples from these contexts (Bln-922 and 923 respectively). The boundary between phases VII and VIII at Golyamo Delčevo has a distribution of 4655–4520 BC, which again is identical to the commencement of the Varna I cemetery. Phases VIII–XI are much closer in age to Varna dates. Comparison with dated Late Eneolithic contexts at Azmak[40] is complicated by wide variations in the radiocarbon determinations there, which are probably inbuilt age influenced on the one hand and, we suggest, by taphonomic problems on the other. Y. Boyadziev suggested that two dates from phase V from Smyadovo (Bln-2185 and 2117) compared closely with two others for horizon IV from the Durankulak tell, belonging to the end of phase II of the Varna culture[41]. Our analysis of the Smyadovo chronology suggests that the dated Late Eneolithic contexts II–VII span ~4600–4350 BC, with 4 determinations producing low agreement indices in our model and likely therefore to be outliers in their context. These include Bln-2185 and 2117, as well as Bln-1667 and 2116[42]. The Varna culture dates from Durankulak are quite variable, particularly the bone determinations, which ought to be left out of serious discussions of the site chronology[43]. We have recently dated a series of samples from the Durankulak "Big Island"[44] amongst which are two burials ascribed to the "Varna II–III" phases by H. Todorova[45]. The dated contexts (grave 741 (female)[46] and grave 826 (female))[47] produced results that match closely the new series from the Varna I cemetery (5650–5690 BP).

In the wider context of the absolute dates from Moldova, Northern Greece and the North Pontic, several sites provide key series of absolute dates but of varying reliability. When we examined the dates obtained from Cucuteni A2 horizon from tell Poduri[48] and all of the dates for the Cucuteni AB–Tripolie BII phases to the North and North East of Tell Poduri[49], it is apparent again that there may be potential problems with sample constituents. Here two of the samples are of grain, whilst the remainder are of charred wood and charcoal of indeterminate inbuilt age as far as we can tell. One can see in fig. 6 that the A1 phase overlaps closely with the Varna determinations as described above,

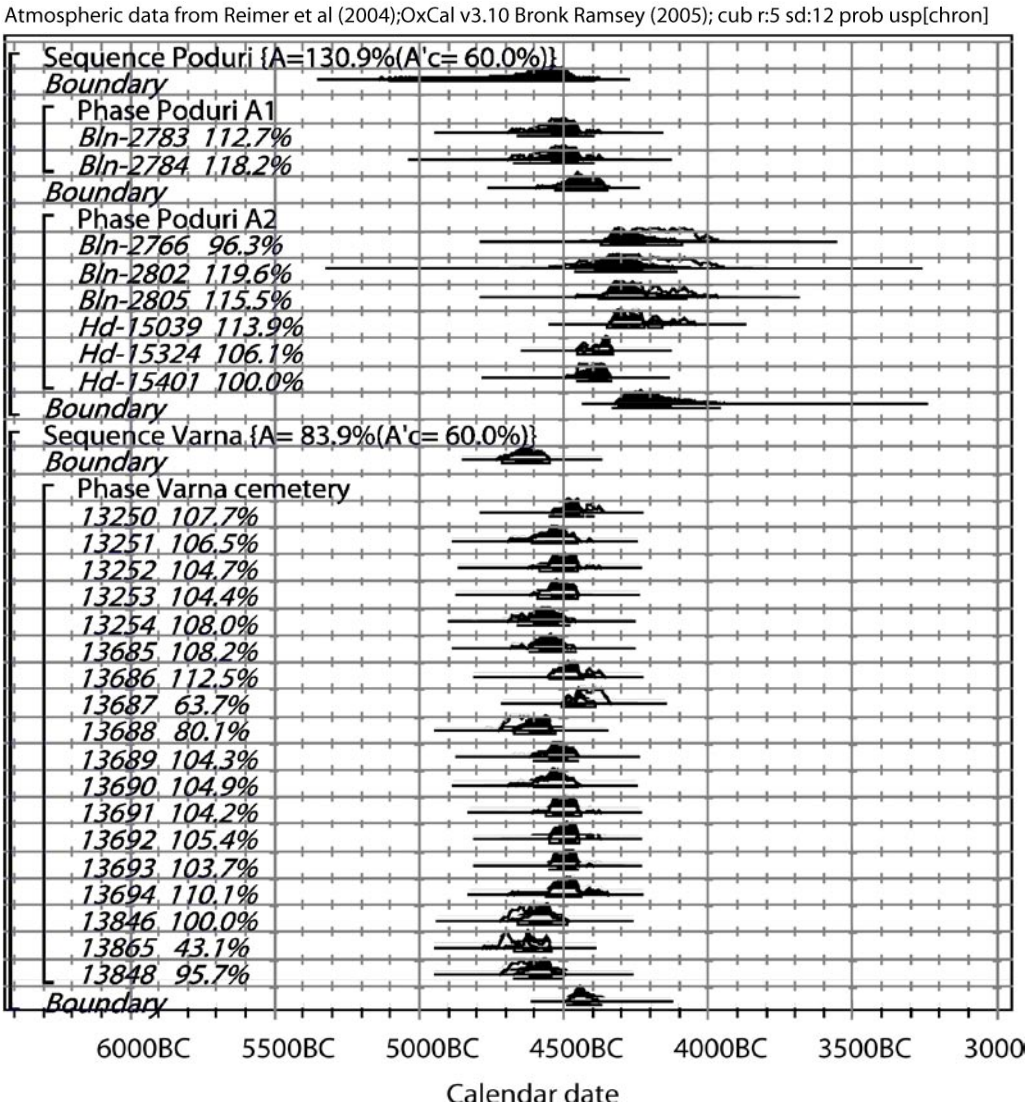

Fig. 6. Comparison between the determinations from Poduri tell, with those obtained in this paper from Varna

whereas the A2 phase seems to be somewhat later; even accounting for potential inbuilt age, the later date for the A2 phase appears robust in the face of potential objections.

Turning to Northern Greece, the new Varna series match closely with the earliest part of Phase III at Sitagroi. We modeled the Sitagroi radiocarbon determinations grouped by phase, through Phases I–Vb[50]. The modeled *terminus post quem* for Phase III is 4710–4540 BC (68,2% prob.). Sitagroi Phase III is poorly dated in its later levels but on current

evidence Varna only overlaps chronologically with the very earliest part of the occupation anyway, which is dominated by Marica-style ceramics of the Karanovo V phase. By comparison, the Karanovo VI levels at Dikili Tash, Northern Greece (Gif 1423–1425, 1736, 1738: 5940–5600 BP)[51] indicate an occupation between ~4700–4500 BC, again closely comparable with Varna I.

The recently published AMS date for the Early Ochre-Grave at Cainari in Moldova (5580±80 BP, 4610–4310 cal. BC at 2 sigma (92,3% prob.): KIA 369) is similar to our series, but Varna pre-dates the other new Ochre-Grave date from grave 12 of the Decea Mureşului cemetery in Western Transylvania (5380±40 BP: 4340–4220 (61,3 prob.), 4210–4150 (17,7) and 4140–4050 (16,3) cal. BC at 2 sigma: KIA 368)[52]. This is important in the light of the hypothesis that interactions between the Balkan agro-pastoral zone and the Pontic steppe were transformed through the eastward transmission of innovations in prestige mortuary practices first found at the Varna I cemetery into the forest steppe and steppe zones.

Conclusions

The new radiocarbon series we have obtained from the Varna I cemetery fits into the earliest part of the wide limits of the chronology proposed by the late Ivan Ivanov and Maya Avramova[53] for the cemetery (4600–4200 BC). Our determinations date Late Eneolithic graves from the Varna I cemetery to 4600–4550 to 4500–4400 BC. This is a period coeval with the Middle Copper Age on other sites and in other regions, as defined by Y. Boyadzhiev[54]. The Varna dates have two important consequences. First, they advance by one or two centuries the beginning of the Late Copper Age in the Black Sea zone. Secondly, they demonstrate that the start of burial practices at Varna I dates to the very beginning of the Late Eneolithic and not as late as Bulgarian colleagues have thought. The third implication is that the adoption of similar ceramic styles and metal objects may have occurred at different rates in different parts of the East Balkans, with more rapid developments in a centre of social and cultural innovation such as the Black Sea zone.

Our results suggest that the highest probability of use of the cemetery is just over a century (a range of 70–155 years at 68,2% prob.). Considering the number of graves (almost 300), this is a short timespan of use – probably shorter than most archaeologists would have supposed. This time-span has implications for the range of communities having the right to bury their dead at Varna I. Moreover, we could detect no spatial distribution of dates, indicating the likelihood that all areas of the cemetery were receiving burials from the same time, i.e. there was no linear or zonal spread of early graves to late graves across the cemetery. This is perhaps a sign that several communities were burying clusters of burials in different areas of the cemetery from an early stage of its use. We investigated whether or not there was any significant difference between the age of the dated burials that contained few grave goods, and those that contained more

significant mortuary offerings. We found that burials containing few deposited artifacts clustered towards the later phase of use of the cemetery. If validated, this tentative conclusion would reinforce the significance of Varna I as a centre of innovation in terms of the massive accumulation of prestige mortuary exotica.

It should be emphasised, of course, that, since the new dates from Varna I represent only a fraction of the total of 294 burials (just over 5%), our conclusions are preliminary at this stage. These analyses are only the beginning of what we hope will be a long collaborative research programme in which further dates are obtained from human bone remains from this, and other sites, to provide the secure chronology that is merited by such an important region in prehistoric Europe.

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Appendix

Grave information and descriptions of associated grave goods of samples dated at ORAU (for selected finds, see fig. 2).

Grave No.	**Description**
Grave 10	The depth of the burial pit is 1,80 m. Contracted inhumation of a 25–30-year-old male, placed on the left side, oriented to 70°. Grave goods – fragments of a clay vessel and a flint blade.
Grave 11	The depth of the burial pit is 1,11–1,26 m. Contracted inhumation of a young female, placed on the right side, oriented to 38°. Grave goods – lumps of red ochre, two clay lids and three clay vessels, copper and bone rings, a copper needle, a flint blade and a necklace of cylindrical lignite beads.
Grave 43	The depth of the burial pit is 2,20 m. Extended inhumation of a 40–50-year-old male, with a height of cca. 1,70 m, oriented to 24°. The rich grave goods comprise: gold earrings and circular appliqués used for the ornaments of a head-dress. Two gold bracelets on both forearms, with a *Spondylus* bracelet on the left forearm, broken in two pieces and repaired with gold plates. Gold-ring bracelets on both wrists. The deceased was buried in clothes trimmed with gold and carnelian beads and circular gold appliqués. On the thorax, there was a large circular gold appliqué. Above the left side of the pelvis, there were two rectangular gold plates. On the right side of pelvis, there was a gold penis sheath. Above each patella was one circular gold appliqué. West of the skull, there was a clay bowl. East of the skull there were golden fittings for a quiver and a clay pedestal. On the left side of the skeleton was a bow, with its gold fittings, and two spears, one with a flint point, the other with a copper point. On the left forearm, there were two bone needles. In his right hand, the deceased held a stone axe-sceptre, whose handle had been inserted into gold tubes and rings, and a copper axe. Above his chest there were some fine fragments of a clay vessel with a lid. On the right side, there was a flint blade above his pelvis. One more flint blade was placed on the pelvis, with a third on the left side, by the left femur. Between the knee joints, there were copper and stone axes and a stone adze. Left of the left patella, there was a copper adze, awl and needle and a stone adze. The remains of a clay vessel was placed in the grave-fill. It is the richest inhumation grave in the whole cemetery. This fact, together with the axe-sceptre and gold penis sheath, suggests that the leader-priest of the Varna community was buried here.
Grave 44	Heavily damaged by agricultural works. The depth of the burial pit is 0,95–1,03 m. Extended inhumation without grave goods.
Grave 94	The depth of the burial pit is 0,69–0,84 m. Extended inhumation, oriented to 43°, with the head facing North. Grave goods – a decomposed clay vessel.
Grave 111	The depth of the burial pit is 1,50–1,68 m. Extended inhumation of a 30–35-year-old male, oriented to 39°. Grave goods – two antler hammer-axes, unidentified antler tool, stone adze, five clay vessels and lumps of yellow ochre.
Grave 112	The depth of the burial pit is 1,12–1,30 m. Extended inhumation, oriented to 20°. Grave goods – a copper needle (fig. 2: 4), a flint blade (fig. 2: 1), a miniature trapezoidal polished limestone adze (fig. 2: 2), a heavily destroyed deer antler tool, a necklace of 3 beads from metamorphosed ultrabasite (fig. 2: 6) and 11 *Spondylus* beads (fig. 2: 7), five clay vessels, only two of them were complete (fig. 2: 3, 5) and small fragments of a ceramic sieve.
Grave 117	The depth of the burial pit is 1,30–1,40 m. Extended inhumation of an adult male, oriented to 29°. Grave goods – copper awl, flint blade, an antler hammer-axe, two *Spondylus* bracelets and four clay vessels.
Grave 121	The depth of the burial pit is 1,05–1,17 m. Contracted inhumation on the right side, oriented to 35°. Grave goods – two decomposed clay vessels.

Grave 125	The depth of the grave pit is 0,81–0,89 m. Extended position, oriented to 23°. Grave goods – a decomposed clay vessel.
Grave 137	The depth of the grave pit is 1,45–1,60 m. Extended inhumation, oriented to 45°. Grave goods – one clay vessel.
Grave 143	The depth of the burial pit is 2,60 m. Extended inhumation of a young male (16–20 years), oriented to 28°. Grave goods – a gold crescentic plate, a copper axe and an awl, a flint blade and a scraper, stone adze, an antler hammer-axe, a necklace of carnelian, lignite and *Spondylus* beads, two *Spondylus* bracelets, six clay vessels and lumps of red ochre.
Grave 158	The depth of the burial pit is 1,20–1,30 m. Contracted inhumation of an infant, place on the right side, oriented to 3°. Grave goods – marble necklace, *Spondylus* and metamorphosed ultrabasite beads, four *Spondylus* bracelets and three clay vessels. The deceased has been buried in clothes trimmed with *Spondylus* appliqués.
Grave 215	The depth of the burial pit is 0,89–0,96 m. Extended inhumation of a young adult of uncertain sex, oriented to 34°. Grave goods - two flint blades, an antler tool (awl?) and two clay vessels.
Grave 225	The depth of the burial pit is 0,39–0,42 m. Extended inhumation of an adult, probably female, buried with sherds from one vessel.
Grave 255	The depth of the grave pit is 0,65–0,93 m. Extended inhumation of an adult, probably female, oriented to 352°. Grave goods – a gold pendant (fig. 2: 12), a copper axe-hammer of the Čoka–Varna type (fig. 2: 9), a copper needle (fig. 2: 11), a flint scraper (fig. 2: 10) and a polished stone adze (fig. 2: 8) were found in the grave.

НОВИ AMS РАДИОВЪГЛЕРОДНИ ДАТИ ЗА ВАРНЕНСКИЯ ЕНЕОЛИТЕН НЕКРОПОЛ (БЪЛГАРСКО ЧЕРНОМОРСКО КРАЙБРЕЖИЕ)

ТОМ ХАЙЪМ (ОКСФОРД), ДЖОН ЧАПМАН (ДЪРАМ),
ВЛАДИМИР СЛАВЧЕВ (ВАРНА), БИСЕРКА ГАЙДАРСКА (ДЪРАМ),
НОА ХОНЧ (ОКСФОРД), ЙОРДАН ЙОРДАНОВ (СОФИЯ),
БРАНИМИРА ДИМИТРОВА (СОФИЯ)

В статията се разглеждат данните от серия от 14 AMS дати от Оксфордската лаборатория – първите за Варненския енеолитен некропол.

Бяха взети проби за изследване от подбрани от различни части на некропола гробове с различен по състав гробен инвентар, в които погребаните са на различна възраст и са от различен пол. Направени са предварителни коментари на значението на датите за пространственото развитие на некропола и за по-ранната датировка на гробовете с голяма вариабилност и богатство на гробните дарове.

Дискутирана е проблематиката на времевата граница между средния и късния енеолит в Източна България. Направено е сравнение на хронологическия обхват, получен за Варненския некропол, с датите от ключови енеолитни обекти като Дуранкулак, Овчарово, Голямо Делчево, Смядово, Ситагри и Подур. Изненадващо се установява неочаквано ранната датировка на появата на некропола, краткото му съществуване и бързото му изоставяне.

LE MOBILIER EN SILEX TAILLE DES TOMBES DE VARNA I

LAURENCE MANOLAKAKIS (PARIS)

Les premières hiérarchies sociales d'Europe se développent progressivement dans les Balkans, dans un contexte local traditionnel. C'est dans le Hord-Est de la Bulgarie que les témoins de ces bouleversements sont particulièrement bien illustrés, parfois de manière spectaculaire comme avec la nécropole de Varna[1].

Pour aborder l'organisation économique et sociale des sociétés préhistoriques, la production des outils en silex est un domaine particulièrement pertinent. En effet, même s'il ne s'agit que d'un segment de la production économique, l'étude du matériel lithique taillé permet de s'interroger sur la spécialisation artisanale, la richesse et le pouvoir, et plus particulièrement sur la répartition de la richesse et du pouvoir au sein de ces sociétés. C'est donc en partant de l'analyse technologique du matériel lithique taillé que sont évoqués ici les liens entre développement technique, organisation économique complexe et transformation sociale profonde.

Les données issues des ensembles funéraires pourraient paraître directement appropriées à l'étude de la fonction sociale des objets; mais la valeur de ces données et leur rôle ne peuvent être abordés qu'après une étude détaillée de leur fonctionnement et de leur place dans la vie quotidienne du monde des vivants, c'est-à-dire dans l'habitat. C'est pourquoi les résultats de l'étude du matériel des habitats fondent ceux des nécropoles. Ces dernières se trouvant, en l'état actuel de la recherche, exclusivement localisées dans le Nord-Est, c'est évidemment sur cette région que l'étude est focalisée. Néanmoins, le corpus complet a porté sur près de 70 sites[2], répartis sur l'ensemble du territoire actuel de la Bulgarie et le nord de la Grèce (fig. 1). Tous appartiennent à un grand ensemble que l'on peut appeler "Zone à Céramique Graphitée" (ZCG), regroupant les complexes culturels successifs de Boian–Marica–Karanovo V, Kodžadermen–Gumelnița–Karanovo VI, et les cultures et groupes culturels successifs apparentés. L'étude des débitages a révélé deux grands ensembles techniques:

- une grande moitié orientale, à l'intérieur de laquelle Nord-Est et Thrace ne se distinguent pas vraiment;
- une grande moitié occidentale, clairement distincte de la moitié orientale et à l'intérieur de laquelle on individuakise nettement les entités du nord-ouest, du sud-ouest et du nord de la Grèce, mais où l'on observe aussi une sorte de continuum nord/sud.

Si l'ensemble oriental montre une très grande homogénéité dans la production et la consommation de l'industrie lithique, la moitié occidentale offre beaucoup plus de variété.

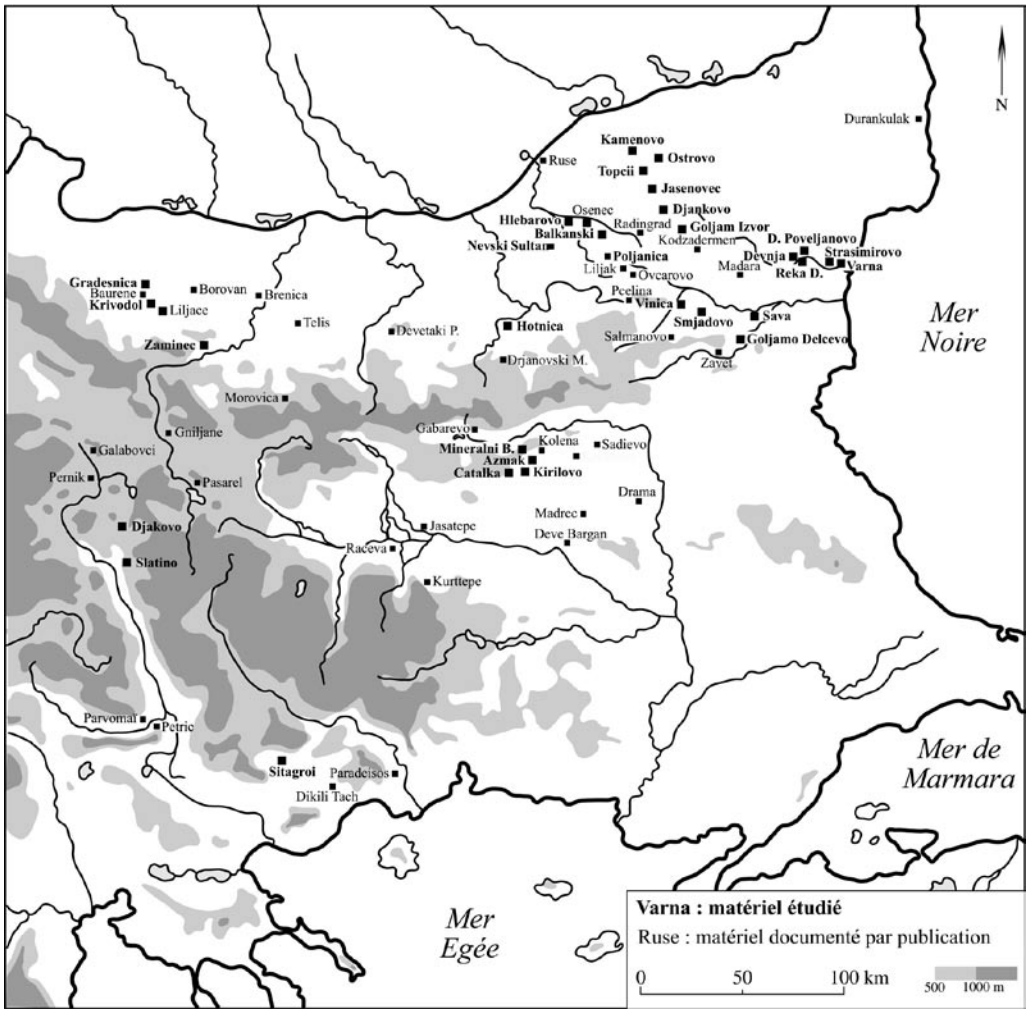


Fig. 1. Carte des sites étudiés

L'industrie lithique des habitats du Nord-Est de la Bulgarie

Près d'une trentaine d'habitats et la quasi totalité des ensembles funéraires de la région ont été pris en compte, à l'exception de la nécropole de Durankulak. Etudiée par N. Sirakov[3], les observations qu'il a faites sur les objets lithiques déposés dans les tombes chalcolithiques de cette nécropole confirment les résultats obtenus par ailleurs et présentés ici.

Les matières premières. Dans le Chalcolithique d'Europe sud-orientale, l'obsidienne tient une place importante voire prédominante, les sources les plus proches se trouvant dans le Tokaj en Hongrie, en Égée particulièrement à Milos, et en Anatolie. Alors qu'elle circule sur de très longues distances, jusqu'à plusieurs milliers de kilo-

mètres, et qu'elle est présente dans tous les ensembles culturels limitrophes de la ZCG, l'obsidienne n'est ici pour ainsi dire pas attestée. Elle ne l'est de manière absolument certaine que par une unique lame, d'origine égéenne, déposée dans la tombe 41 de Varna[4]. Toutefois, une autre lame est peut-être présente à Kolarovo dans le Sud-Ouest[5], sans qu'une analyse l'ait confirmé. En outre, dans les rares autres cas où de l'obsidienne a été signalée, sa présence reste douteuse: à Sedlare dans le Sud-Ouest (matériel exposé au musée de Kărdžali), il s'agit non pas d'obsidienne mais de quartz fumé, abondant dans la zone rhodopienne du Sud-Ouest[6], et à Dikili Tach (nord de la Grèce) il s'agit très probablement de contaminations stratigraphiques[7].

La matière première exploitée dans le Nord-Est est donc exclusivement le silex. La plate-forme prébalkanique recèle une grande abondance de silex et un certain nombre d'études en font l'inventaire[8]. Tous les silex du Nord-Est sont jaunes à brun jaune, parfois brun gris ou brun noir, diversement dénommés "silex miel", "silex jaune cire", "silex balkanique", ou "silex de la plate-forme prébalkanique". Le silex noire ou gris-noir, livré notamment par des sites submergés du lac de Varna, est en réalité un silex jaune dont la couleur s'est chimiquement transformée jusque assez profondément dans la masse. Cette modification, probablement liée au long enfouissement en eau saumâtre, n'altère pas le coeur des pièces épaisses, qui reste jaune.

Les gisements de silex prébalkanique se trouvent en position autochtone dans les calcaires secondaires du Hauterivien/Barrémien et dans la couche résiduelle d'altération de l'Aptien, mais également en position allochtone dans les dépôts quaternaires.

L'exploitation du silex et la production des supports. La production des supports, exclusivement laminaire, est absolument identique dans tous les habitats du Nord-Est, et ce durant tout le Chalcolithique. Chaque village a pratiqué un débitage sur des silex locaux et microrégionaux, dont les gîtes sont toujours situés à moins d'une quinzaine de kilomètres de l'habitat, c'est-à-dire à moins d'une demi-journée de marche du village. Les tests de qualité des rognons de silex, et parfois le dégrossissage, ont été effectués sur les sources elles-mêmes. Tout le reste de la chaîne opératoire du débitage – préparation et mise en forme du nucléus, débitage des supports et façonnage des outils – a été pratiqué dans l'habitat lui-même, comme l'attestent toujours les déchets lithiques. La préparation a été faite par percussion directe, tandis que la mise en forme par crête, le plein débitage et toutes les opérations d'entretien de la table (ou face d'éclatement) semblent l'avoir été par percussion indirecte[9], sur plan de frappe lisse, unique, avec abrasion ou suppression de la corniche (fig. 2). L'entretien de la table, et en particulier le rattrapage des réfléchissements, est systématiquement fait dans le sens du plein débitage à partir du plan de frappe, et jamais transversalement ou en opposition comme il est courant de le voir pratiqué ailleurs. Les caractéristiques techniques des supports de plein débitage sont très uniformes: ce sont des lames de longueur moyenne, larges et épaisses (le plus souvent: 10 à 15 cm x 2,50 à 3,50 cm x 0,50 à 1 cm); le talon est systématiquement lisse, épais, avec un cône incipient souvent visible, voire double; le bulbe est diffus, la corni-

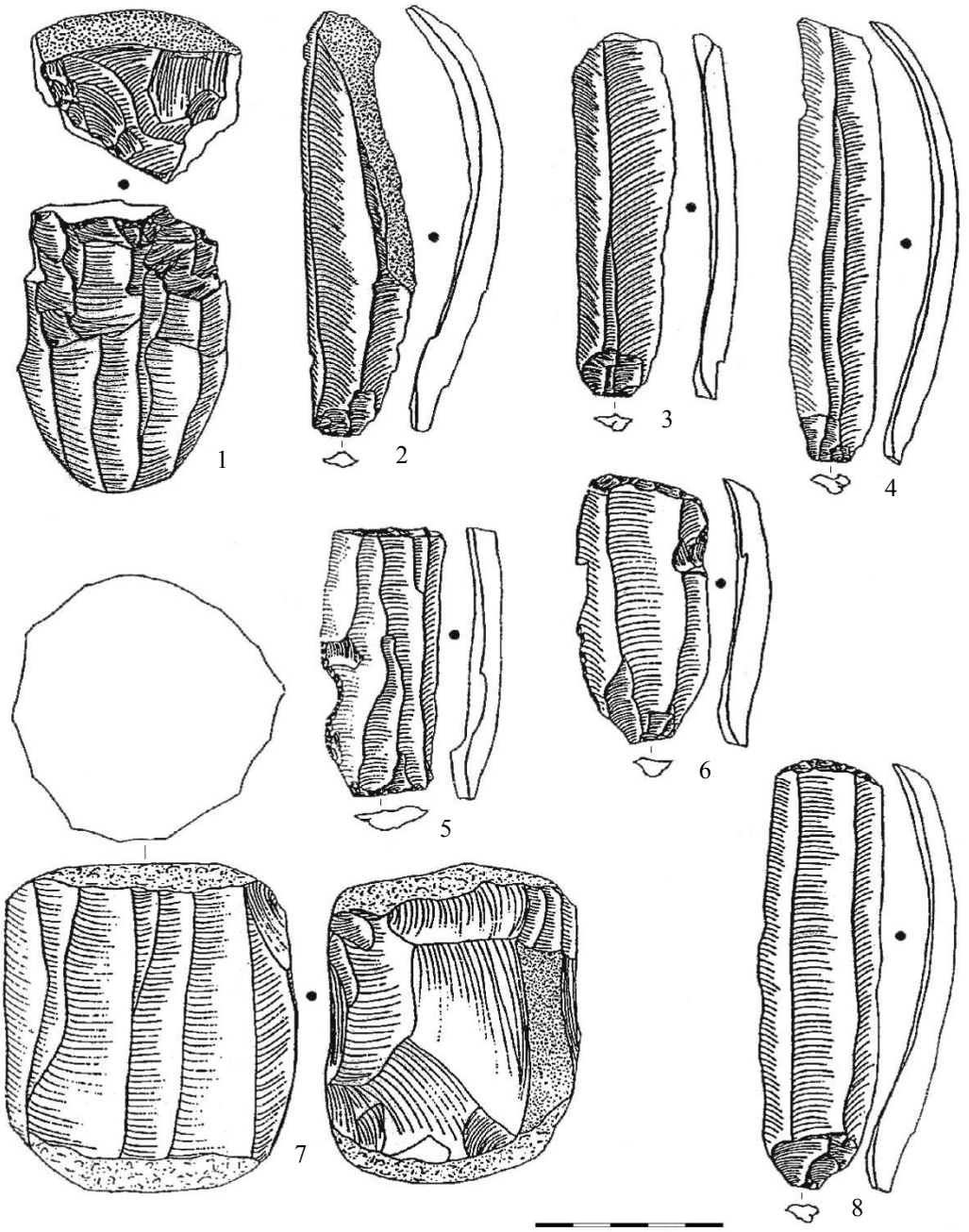


Fig. 2. Débitage domestique par percussion indirecte

che toujours abrasée ou grossièrement supprimée, les nervures sont régulières à irrégulières. Le profil des lames est arqué voire très arqué.

Le mode de production de ces lames peut être qualifié de débitage domestique: une unité domestique produisant pour son propre usage. Les produits de ce débitage ne circulent pas d'un village à l'autre, ni à l'extérieur de la région.

Dans tous les villages du Nord-Est, on trouve quelques lames qui ne proviennent pas de ce débitage domestique. A partir du Chalcolithique récent, s'y ajoutent quelques haches taillées en silex qui sont façonnées sur des nucléus (fig. 3), ces derniers ne correspondant pas, eux non plus, au débitage domestique. Ces nucléus et ces lames représentent 10 à 12% du matériel lithique taillé d'un habitat, jamais plus. Ils sont les produits d'un même débitage, dont aucun déchet de taille n'est attesté dans les habitats. Par conséquent, ces pièces arrivent dans les villages sous forme de produits finis (les haches), ou semi-finis (les lames). Les nucléus sont plats, à crêtes postéro-latérales et dos préparé, débitage unipolaire et une table semi-périphérique. Les lames sont très longues, jusqu'à 33 cm de longueur pour les lames entières connues en contexte d'habitat. Elles sont larges et minces, de profil droit très légèrement arqué en partie distale, à très petit talon lisse, bulbe net, et deux nervures rectilignes (fig. 4). La rectilinéarité et la légèreté de ces très grandes lames, leur épaisseur faible et constante sur une très grande longueur, l'étroitesse du talon excluent un débitage par percussion et suggèrent un débitage par pression. C'est en travaillant en collaboration avec J. Pelegrin dans le cadre d'un programme de recherche du CNRS sur le débitage des grandes lames, qu'il a été possible d'affirmer qu'il s'agit là d'un débitage par pression. Mais une pression considérable, puisque au moins 300 kg de pression au cm^2 sont nécessaires pour pouvoir "arracher" des lames d'une telle longueur. Dans le cadre d'une étude expérimentale, J. Pelegrin a montré qu'il était possible d'obtenir, par pression au levier, des lames avec des stigmates et des caractéristiques techniques tout à fait identiques à ceux décrites ici. Le système de levier et de maintien du nucléus constitue un assemblage complexe qui peut être considéré comme l'une des premières machines attestées dans l'histoire de l'Homme.

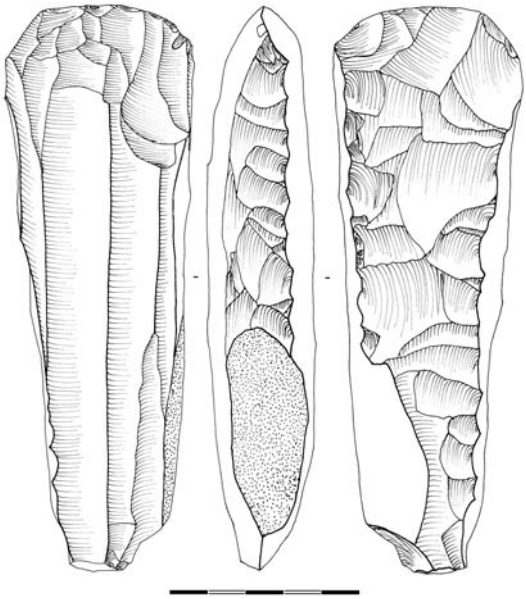


Fig. 3. Nucléus du débitage spécialisé par pression au levier, retaillé en hache

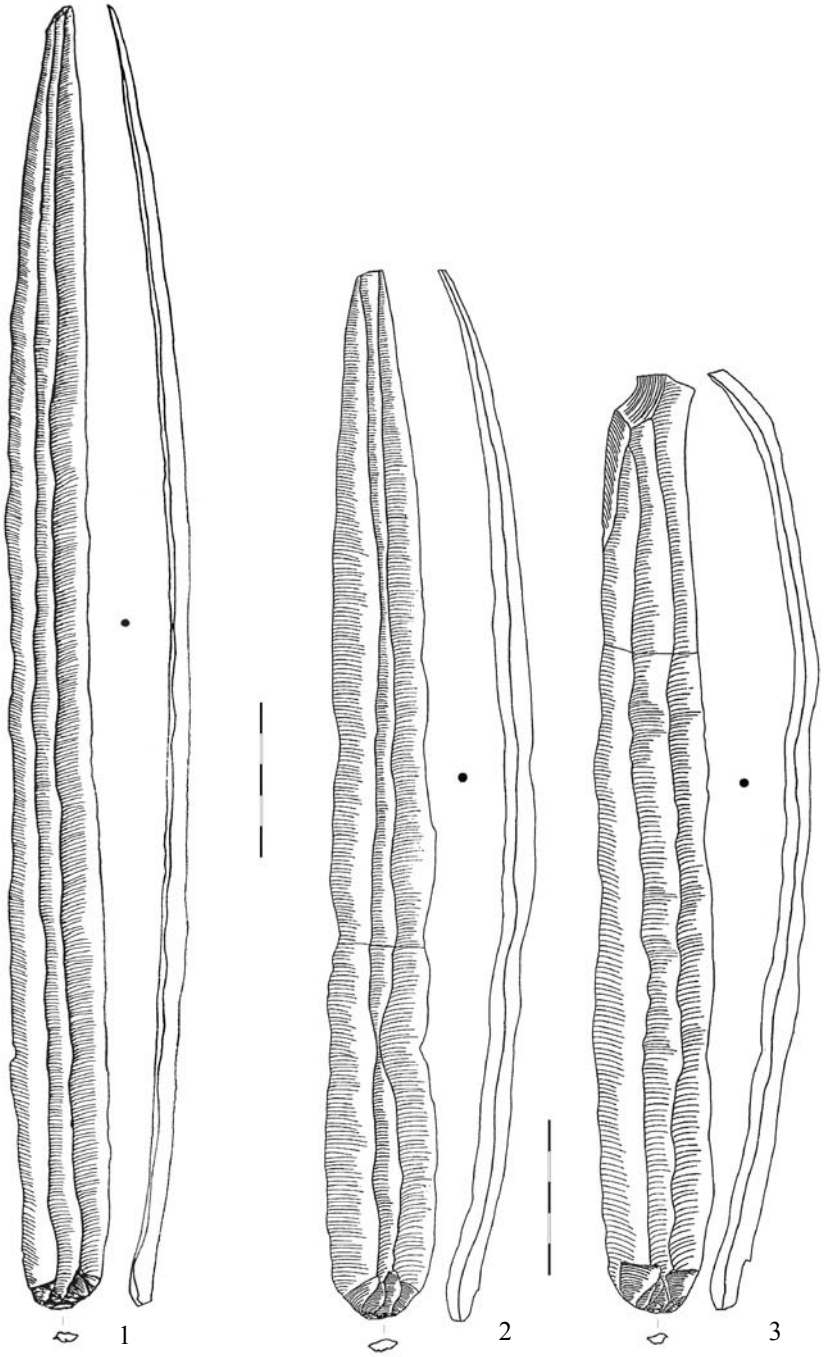


Fig. 4. Très grandes lames du débitage spécialisé par pression au levier

Ces très grandes lames imposent des rognons de dimensions exceptionnelles, un silex de bonne qualité, homogène et à grain fin. Les gîtes livrant ce type de matière première sont extrêmement rares et la seule concentration actuellement connue se trouve dans les environs de Razgrad (Nord-Est). A l'issue d'un programme de prospections géologiques et archéologiques sur plus de 540 hectares dans le district de Razgrad[10], des déchets de débitage par pression au levier ont pour la première fois été retrouvés: grands éclats de dégrossissage, éclats de mise en forme, notamment de crête, fragments de grandes lames, etc., mais surtout quelques nucléus à très grandes lames, abandonnés, qui représentent les premiers exemplaires de nucléus de ce type sous forme de déchets, non repris en hache. Le tell de Kamenovo établi au pied des sources a révélé, au cours de la première campagne de fouilles[11], l'existence d'ateliers de débitage de très grandes lames à l'intérieur même de l'habitat.

De par la rareté des gîtes et ateliers de production, les grandes lames et les haches sur nucléus sont dans un silex de provenance locale pour certains habitats, régionale pour d'autres (une vingtaine à une cinquantaine de kilomètres de l'habitat, soit une à deux journées de marche), voire exogène, à plus de cinquante kilomètres du village, parfois plusieurs centaines.

Ces produits de débitage sont très spécifiques:

- arrivée dans l'habitat sous forme de produits semi-finis ou finis;
- haute technicité dans la mise en oeuvre du débitage;
- localisation circonscrite des sources et des ateliers.

Par ces caractères, le débitage par pression au levier ne correspond pas à un débitage domestique mais à un débitage spécialisé.

La production des outils. En ce qui concerne le façonnage de l'outillage, la très grande majorité des outils a été réalisée sur les supports (lames), mais aussi, sporadiquement, sur des éclats de préparation: il s'agit alors essentiellement de grattoirs sur éclat. Les trois principaux types d'outils sur lame sont les grattoirs (prédominants), les lames utilisées, les éléments de faucille. D'autres types sont toujours présents, mais en moindres proportions, tels que les burins et les lames retouchées.

Les grattoirs, façonnés sur l'extrémité distale, comprennent presque toujours la partie proximale de la lame. Ils sont raccourcis au fur et à mesure des réaffûtages à partir de la lame entière. Un ou les deux bords latéraux sont parfois retouchés; ce façonnage est peut-être en rapport avec l'emmanchement. En outre, les bords latéraux montrent souvent des traces macroscopiques d'utilisation qui correspondent soit à un emmanchement soit à une première utilisation de la lame pour ses tranchants.

Les lames utilisées ne comprennent souvent que la partie mésiale de la lame, c'est-à-dire la plus rectiligne, probablement pour faciliter l'emmanchement. Nombre des fragments mésiaux utilisés sont cassés juste après le bulbe, laissant supposer qu'ils ont été segmentés volontairement. Les lames portent des traces macroscopiques d'utilisa-

tion – émoussés, polis, ou esquillements, beaucoup plus rarement luisants – sur un seul bord ou sur les deux bords. Le type le plus courant est la lame utilisée simple, mais quelques-unes sont à troncature. Les lames les plus rectilignes de la percussion indirecte et les lames débitées par pression sont choisies de préférence pour ces utilisations. Les lames utilisées constituent souvent l'outil le plus abondant derrière les grattoirs.

Les éléments de faucille, caractérisés par un lustre oblique, très épaiset en général unique, sont le plus souvent sur lame simple. La partie choisie de préférence comme support est le fragment mésial, le plus rectiligne de la lame, certainement pour faciliter l'emmanchement. C'est pourquoi les lames débitées par pression sont également sélectionnées pour cette utilisation. La longueur en général faible de ces outils et le fait qu'il s'agisse d'outils entiers (lustre présent sur l'angle de fracture ou de troncature) permettent de penser que ce sont des segments de lame insérés les uns au-dessus des autres dans un manche, comme on en trouve des exemplaires complets dans quelques sites de Bulgarie tels que Karanovo[12]. Les éléments de faucille peuvent être aussi nombreux que les lames utilisées.

Le reste de l'outillage est constitué:

- des burins d'angle sur cassure (plus rarement dièdres, sur troncature ou transversaux) en général pris sur proximal ou mésial de lames épaisses du débitage domestique;
- des lames retouchées souvent sur les deux bords latéraux, façonnées sur proximal ou mésial de lames débitées par percussion ou par pression;
- de quelques éclats retouchés (débitage domestique);
- des pièces esquillées souvent sur lame (débitage domestique);
- des lames appointées (débitages domestique et spécialisé);
- des troncatures sur lame (débitages domestique et spécialisé);
- des percuteurs en silex, parfois sur nucléus de débitage par percussion indirecte;
- et, fait rare dans le matériel d'habitat, des pointes de flèches ou de lances; ces armatures ont toujours une forme grossièrement triangulaire, différentes morphométries sont cependant attestées dans un même habitat (à base rectiligne ou concave, avec ou sans coches latérales ou pédoncule basal, à bords convexes ou rectilignes et de plus ou moins grandes dimensions);
- enfin, des haches taillées en silex, présentes dans de nombreux sites; certaines sont façonnées sur bloc dans le cadre du débitage domestique, d'autres le sont sur nucléus de débitage par pression.

Des réutilisations sont souvent observables mais ne représentent jamais une pratique très importante. Elles se font par retournement symétrique du support dans le cas des éléments de faucille et des lames utilisées (qui ne changent donc pas de fonction), et éventuellement sur des lames retouchées et des lames ultérieurement façonnées en grattoir. Elles sont attestées, également sans changement de fonction, sur les burins et les grattoirs. Dans le cas des outils composites, avec changement de fonction (recyclage),

elles associent le plus souvent grattoirs et burins, ou grattoirs et lustre de faucille, sans que la chronologie des utilisations différentes soit identifiable.

La composition de l'outillage montre le même éventail typologique dans chaque village, mais dans des proportions variables d'un site à l'autre. On en déduit que chaque village a pratiqué toutes les activités réalisées dans n'importe quel autre village, et on peut proposer l'hypothèse qu'il a pratiqué certaines activités plus que d'autres, qualifiables d'activités préférentielles. La situation topographique des sites pourrait être en relation avec ces activités: affleurements de silex de très bonne qualité pour la taille par pression, bord de lac pour des activités liées aux grattoirs et burins, plaine alluviale pour des activités liées aux lames utilisées et éléments de faucille tels que les travaux agricoles, proximité de collines pour des activités liées aux grattoirs tel que le travail du bois ou des peaux, etc.

Débitage domestique et débitage spécialisé en habitat. Le choix du support pour le façonnage de l'outil est visiblement lié à l'épaisseur et/ou à la rectilinéarité du fragment, mais les lames du débitage domestique présentent, selon leurs différentes parties, toutes les morphologies requises. Les supports du débitage spécialisé n'apparaissent pas nécessaires, ni du point de vue morphométrique ni du point de vue d'une utilisation spécifique. Quelle est donc l'utilité de cette production spécialisée? Plusieurs faits sont à constater:

- Le matériel lithique domestique représente toujours un minimum de 88% de l'ensemble du matériel lithique d'un habitat. La présence des lames et haches du débitage spécialisé n'est donc pas due au manque de matière première. Néanmoins, les très grandes lames sont attestées dans tous les villages du Nord-Est et de Thrace, et elles sont présentes dans de nombreux habitats chalcolithiques du Nord-Ouest et du Sud-Ouest, jusque dans les villages culturellement apparentés du nord de la Grèce, à près de 1000 km des sources potentielles et des ateliers de production. Là aussi, leur occurrence est trop faible pour pallier ou même compléter un manque de matière première.

- Les outils sur très grandes lames ne montrent aucune spécificité, ni dans leur typologie ni dans leur utilisation. En effet, les outils, qu'ils soient façonnés sur les supports du débitage domestique ou sur les très grandes lames, présentent une parfaite homogénéité: mêmes types, mêmes dimensions, mêmes utilisations. Ce n'est donc pas pour des raisons fonctionnelles que les très grandes lames sont indispensables.

- Ces lames sont particulièrement longues, mais elles sont pourtant cassées en petits morceaux pour façonner des outils. Cette segmentation se fait aux dimensions des outils façonnés sur les supports du débitage domestique. Ainsi, même dans les régions comme le Sud-Ouest où le débitage domestique est de petit module (6 à 10 cm de long), les très grandes lames sont fragmentées aux mêmes dimensions que les outils façonnés sur débitage domestique. Par conséquent, la dimension initiale, qui fait la particularité de ces lames, n'est pas prise en compte lors de son utilisation. Ainsi, une fois fabriqués, et ayant

circulé parfois sur de très longues distances, ces produits du débitage spécialisé entrent complètement dans le circuit domestique au moment de leur utilisation.

En fait, ce n'est pas l'outil sur très grande lame qui paraît important, mais bien la présence de la très grande lame en tant que telle. On trouve dans les habitats des lots de très grandes lames entières, non utilisées, qui constituent en quelque sorte des réserves, comme des lingots de matière première. La question se pose de la nécessité de produire des lames aussi longues, puisqu'elles sont ensuite fragmentées pour pouvoir être utilisées. Ces très grandes lames semblent bien avoir une valeur particulière lorsqu'elles ne sont pas utilisées fonctionnellement: c'est dans leur essence même, longues, entières et non utilisées, que doit être recherchée leur fonction.

L'étude des mobiliers funéraires, en particulier de la nécropole de Varna, apporte des éléments qui permettent de compléter les résultats de l'analyse du matériel lithique dans son contexte économique, celui des habitats.

Les pièces lithiques des nécropoles

Varna est située sur une terrasse à 500 m de la rive nord d'une baie lagunaire dont le niveau était à environ 6 m sous le niveau actuel de la Mer Noire. Elle a été découverte à l'occasion de travaux publics en 1972 par Ivan S. Ivanov, qui en a réalisé la fouille de 1972 à 1992, sur une surface de 8000 m^2, livrant 293 tombes, toutes datées du Chalcolithique récent[13]. Mais la nécropole s'étend sur environ 10000 m^2, qui laissent encore la possibilité de découvrir au moins une cinquantaine de tombes.

En cours de publication monographique, Varna fait ici l'objet d'une analyse tout à fait préliminaire, essentiellement tournée sur la place des objets lithiques dans les tombes en particulier et dans cette société en général, mais qui se base néanmoins sur l'inventaire complet des 293 tombes.

Les tombes sont toutes des fosses, grossièrement rectangulaires, qui mesurent le plus souvent 2 m de long sur 1 m de large, et dont la grande majorité est orientée nord-est/sud-ouest, la tête au nord-est. Elles se répartissent en tombes à squelette (246) d'une part et tombes sans squelette dites symboliques (47) de l'autre. Notons que trois tombes contiennent 2 squelettes, à chaque fois un homme adulte en inhumation primaire et un jeune, adolescent ou enfant, en inhumation secondaire, et qu'une autre contient 3 squelettes (un homme, une femme, un jeune).

Tabl. 1. Tableau des différents types de sépultures attestés à Varna (d'après **И. С. Иванов**. Енеолитният некропол...)

Tombes avec squelette (n=246)						Tombes symboliques (n=47)	
Simple (n=242)				Multiple (n=4)		simples	à masque
allongé	replié	secondaire	détruite	2 squel.	3 squel.		
102	75	14	51	3	1	44	3

Parmi les tombes à squelette, on trouve trois rites d'inhumation (tabl. 1):

- la position allongée, prédominante: le plus souvent sur le dos, les jambes parallèles et les bras repliés sur la poitrine;
- la position repliée, en majorité sur le côté droit;
- l'inhumation secondaire, les ossements déposés en vrac, sans connexion anatomique et le squelette le plus souvent incomplet.

Dans les tombes symboliques, sans squelette, le matériel est disposé comme s'il y avait un corps dans la fosse; I. Ivanov distingue les tombes symboliques simples des tombes symboliques à masque, dites cénotaphes. Celles-ci contiennent en lieu et place de la tête un masque en argile peu cuite, sur lequel sont disposés des objets figurant les yeux, le nez, les dents ou la bouche.

D'un point de vue chronologique, les deux positions de squelette, repliés et en décubitus, sont attestées dans les inhumations du complexe culturel immédiatement antérieur du Chalcolithique ancien, autant localement (Varna II) que dans la plaine danubienne limitrophe qui appartient au même complexe culturel (Cernica[14], culture de Boian). L'inhumation secondaire est également connue dès le Chalcolithique ancien, alors que les tombes symboliques ne le sont pas. Au Chalcolithique récent, si les inhumations secondaires sont attestées, elles sont nettement moins bien représentées que les inhumations symboliques qui apparaissent à cette époque. Il est donc tout à fait possible que les quelques inhumations secondaires de Varna constituent une perduration du rituel du Chalcolithique ancien, progressivement remplacé par celui de l'inhumation symbolique.

Les déterminations anthropologiques sont méthodologiquement anciennes[15] et ne portent que sur 69 squelettes pour les déterminations de sexe et 102 pour les déterminations de classes d'âges (tabl. 2); enfin, certaines ont été faites à la fouille, sur le terrain, au vu du mobilier associé[16]…

Tabl. 2. Tableau des déterminations de sexes et d'âges disponibles

	Allongé	**Replié**	**Secondaire**	**Détruite**	**Total**
Homme	27	8	4	3	42
Femme	9	11	4	3	27
Total	**36**	**19**	**8**	**6**	**69**
Adulte	40	23	9	4	76
Jeune	7	3	2	3	15
Enfant	4	3	1	3	11
Total	**51**	**29**	**12**	**10**	**102**

Le premier point à souligner, et non des moindres, est le fait que, comme dans la plupart des cimetières préhistoriques, toute la population n'est manifestement pas enterrée là: une proportion probablement importante de la population ne dispose pas

de tombe dans la nécropole. D'autre part, on constate un déséquilibre entre les sexes, puisque les déterminations d'hommes sont presque deux fois plus nombreuses que celles de femmes.

Si la position allongée paraît correspondre plus à des squelettes masculins que féminins, en revanche la position repliée se partage également entre les deux sexes. De manière plus générale, les deux sexes sont attestés dans tous les types de tombes, symboliques exceptées bien sûr. Enfin, chaque classe d'âge ("enfant", "jeune" et "adulte") est attestée dans tous les types de tombes à squelette, bien que les adultes soient surreprésentés.

La notion de richesse. Pour l'étude des mobiliers funéraires de Varna, la richesse est l'une des notions clefs qu'il faut tenter de définir. La simple présence d'or dans une tombe a souvent été le seul critère de définition de la richesse. Pourtant la valeur d'un objet dépend évidemment de plusieurs facteurs concomitants, économique, social et symbolique. En pratique, il s'agit d'établir les différences quantitatives et qualitatives entre les assemblages d'une même nécropole, mais aussi entre ces mobiliers et ceux des villages.

Pour ce faire, établissons tout d'abord la distinction entre deux étapes du raisonnement:

- la première, qui se situe au niveau descriptif de l'assemblage d'une tombe proprement dit, décrit une abondance: telle tombe a un mobilier plus riche (plus abondant) que telle autre;

- la seconde, qui se situe à un niveau interprétatif du mobilier funéraire, traduit une richesse socio-économique: elle représente le coût économique et social du mobilier, inséparable du statut du défunt; elle concerne alors le défunt dans sa tombe, en tant que membre d'une société de vivants qui a été enterré.

Le passage du niveau descriptif de l'abondance du mobilier au niveau interprétatif de l'éventuelle richesse sociale ou économique du défunt implique la mise en oeuvre d'une grille d'analyse qui doit permettre la mise en évidence de groupes sociaux et/ou économiques différents. Les grilles d'analyse élémentaires sont les associations entre type d'objets et sexe, classe d'âge ou type d'inhumation. A travers ces grilles d'analyse, les objets peuvent matérialiser directement, par des associations flagrantes, une valeur sexuelle, chronologique, de classes d'âge etc., mais lorsqu'il s'agit de leur valeur sociale, ces associations fondamentales ne suffisent pas. Lorsque ces grilles d'analyse élémentaires ne révèlent pas de groupes, certains auteurs optent alors pour l'attribution de "points" à chaque type d'objet ou de matériau, d'autres choisissent le comptage du nombre absolu d'objets par tombe, les deux options pouvant être combinées.

L'option "attribution de points", quant à elle, n'a pas été retenue dans la mesure où elle paraît subjective et liée à des représentations mentales contemporaines (comme la valeur de l'or ou d'une figurine par rapport à celle d'une lame de silex ou d'un vase en argile): la tombe qui contient un ou des objets ainsi valorisés prend une valeur importante, alors même que la valeur est attribuée à l'objet *a priori*. L'option "nombre d'objets par tombe" n'a apporté aucun résultat. Nous avons donc cherché un autre critère qui

autorise une évaluation sociale des objets sans idées préconçues et qui mette en lumière des groupes de tombes distincts sans faire de chaque tombe une particularité. Le critère est considéré comme pertinent quand, après avoir ainsi distingué différents groupes, ces groupes eux-mêmes mettent révèlent des récurrences.

L'abondance des assemblages funéraires. Au niveau descriptif, 15 matériaux différents sont attestés parmi les mobiliers:

- Il n'y a pas d'association marquée d'un matériau avec un type de tombe, à l'exception des objets en roche tenace (haches et ciseaux) et, dans une moindre mesure, des houes en bois de cerf qui tendent à être déposés dans les tombes à squelette allongé.

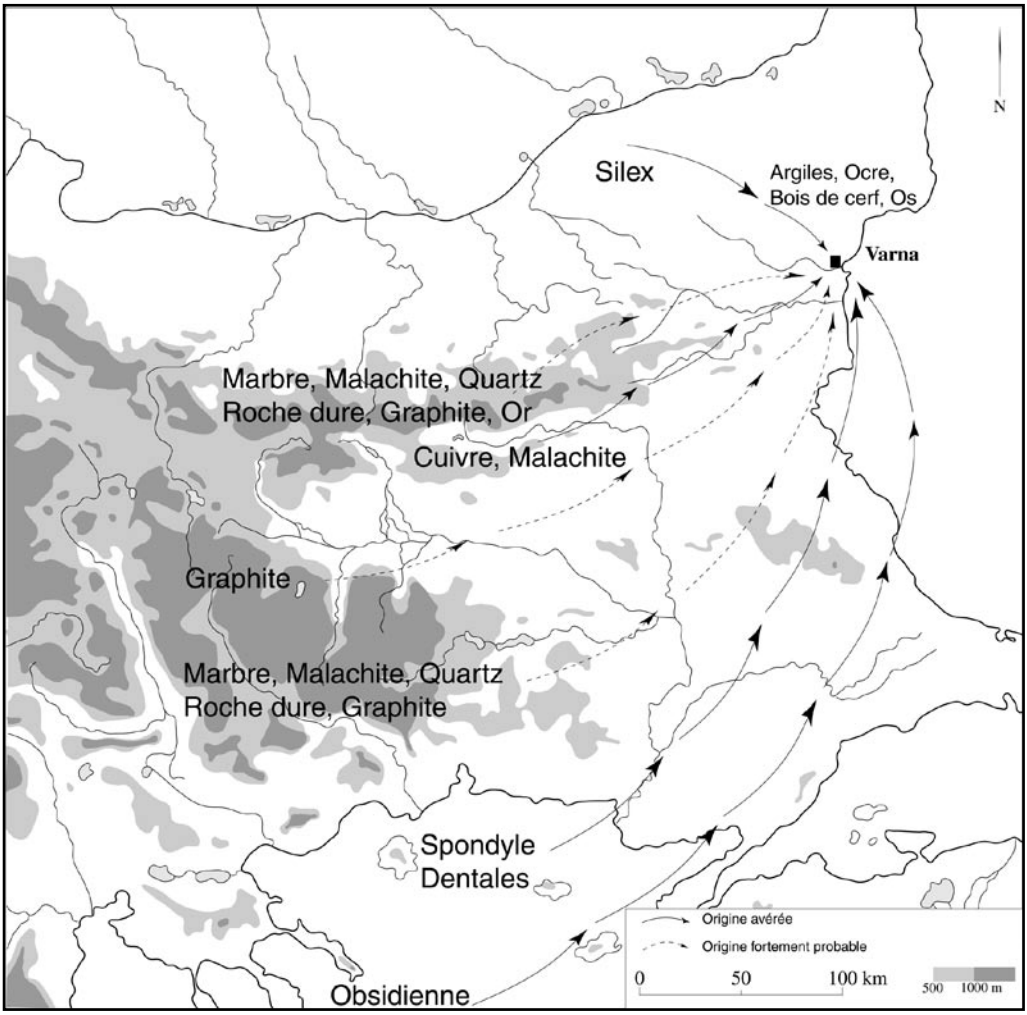


Fig. 5. Carte des provenances de matériaux attestés à Varna

- L'origine des matières premières est très diverse et parfois très lointaine (fig. 5). L'origine de l'or pose un problème encore non résolu. Dans les objets analysés[17], certains montrent une composition physico-chimique non référencée, d'autres une composition proche de celle de l'or du Caucase. L'or a une très large répartition en Bulgarie, non seulement dans à peu près toutes les rivières mais aussi en filons dans les roches cristallines, notamment quartziques. Ainsi, tant qu'on ne disposera pas de référentiel des compositions physico-chimiques de tous ces ors[18], il est nécessaire d'adopter l'hypothèse la moins lourde, c'est-à-dire l'hypothèse de la source potentielle la plus proche: une origine autochtone de l'or.

De la même manière, des matériaux courants comme l'argile, les quartz etc. sont considérés comme provenant des sources potentielles les plus proches tant qu'aucune analyse ne permet de démontrer une source lointaine.

Dans ces matériaux ont été façonnés près d'une soixantaine de types d'objets: fusaïoles, haches, récipients, lances, appliques zoomorphes, boutons, tubes, bracelets, anneaux, perles etc. Les 293 assemblages funéraires de Varna totalisent plus de 30000 objets.

Les catégories d'objets, c'est-à-dire la combinaison qui associe le type de l'objet à son matériau – bracelet en spondyle ou lame brute en silex par exemple – sont au nombre de 83 et ne montrent aucune association nette avec un type de tombe, hormis pour les catégories d'objets présentes seulement dans une ou deux tombes, ce qui n'a pas de valeur démonstrative. La majorité des objets en or appartiennent à ce cas, de même que les armatures en silex ou la lame brute d'obsidienne. Mais des catégories comme les bracelets en spondyle, les perles en or ou les appliques en or dites "anthropomorphes", quantitativement abondantes, se répartissent dans tous les types de tombes.

La répartition de ces types d'objet dans les types de tombes ne montre pas d'associations beaucoup plus probantes:

- Les anneaux (toujours en cuivre ou en or) sont préférentiellement dans les tombes symboliques et celles à squelette replié, de même que les appliques en or ou en os et les clous (toujours en or).

- Les ciseaux (toujours en cuivre ou en roche tenace) sont eux plutôt dans les tombes à squelette allongé et les tombes symboliques, ainsi que les armatures de lances (silex ou cuivre), les épingles (or, cuivre ou marbre), les haches (cuivre ou roche tenace) et les poinçons (os ou cuivre).

- Les bracelets (spondyle, or ou cuivre) sont surtout associés aux tombes à squelette, allongé ou replié.

On ne peut pas dire que les outils sont plutôt dans les tombes à squelette allongé, puisque ce n'est pas le cas des haches, coins, fusaïoles, pilon, pièces retouchées, poinçons, lames retouchées.

Rapportée aux proportions de chaque type de tombe, quelques associations sont rares et ne représentent que des tendances légères:

- Les tombes allongées contiennent souvent des haches polies en roche tenace. Ces haches se trouvent alors apparemment dans des tombes d'hommes, adultes ou jeunes.

- Les tombes symboliques contiennent souvent les haches en cuivre, ainsi que des anneaux en or. Quand elles sont dans des tombes à squelette, les haches en cuivre sont déposées dans des tombes d'hommes ou de femmes, tous adultes ou jeunes. Quand ils sont associés à des tombes à squelette, les anneaux en or sont déposés dans des tombes d'hommes, parfois de femmes, mais aussi d'enfants.

- Les tombes à inhumation secondaire possèdent souvent des figurines en os. Elles se trouvent dans des tombes d'hommes, plus rarement de femmes, en général adultes, rarement d'enfants.

- Les tombes symboliques et à squelette allongé contiennent souvent des lames en silex brutes de débitage. Les lames de silex brutes sont dans des tombes d'hommes ou de femmes, adultes, jeunes ou enfants.

- Toutes les tombes possèdent presque toujours un ou plusieurs vases (1 à 8 vases) en argile, qu'il s'agisse d'hommes ou de femmes, d'adultes, de jeunes ou d'enfants.

Quel critère pour l'estimation de la valeur sociale des objets? En fait, la très grande complexité des dépôts est manifeste et il apparaît clairement que les assembla-

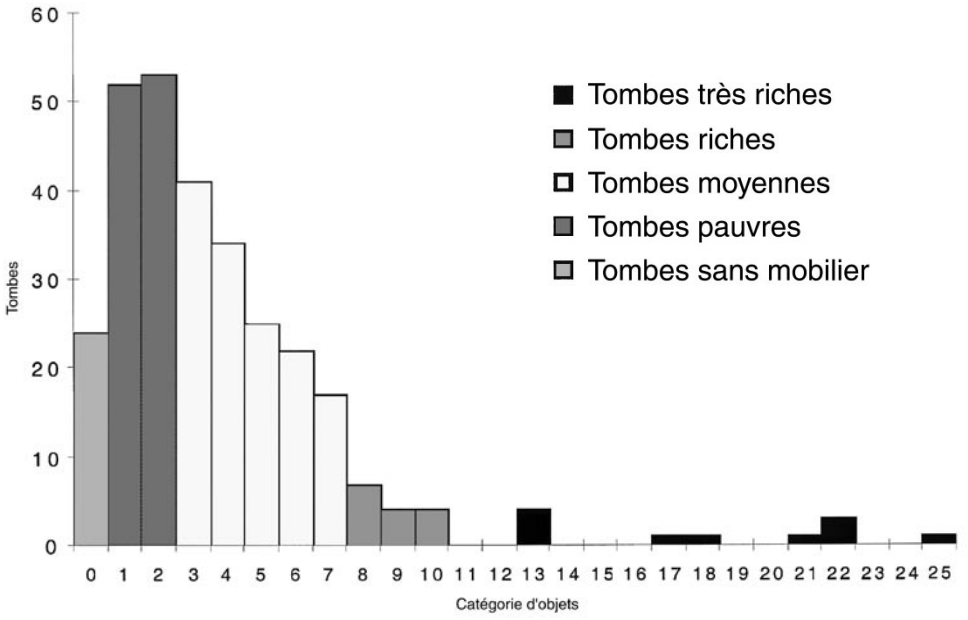


Fig. 6. Représentation graphique des classes de richesse des tombes de Varna

ges ne sont pas directement analysables selon une grille simple basée sur les types de sépultures, classes d'âges et sexes. Aucune n'a en effet permis de distinguer des groupes de tombes cohérents. Parmi les nombreux critères éprouvés, sans résultat, un seul a fonctionné: le nombre de catégories d'objets par tombe dans la nécropole.

La répartition des assemblages en fonction du nombre de catégories d'objets par tombe obéit globalement à une courbe (fig. 6), mais un petit groupe de tombes se distingue nettement, celui des tombes contenant une très grande quantité de catégories d'objets. Cela permet de distinguer cinq groupes d'abondance (tabl. 3):

- les assemblages très pauvres, sans mobilier ;
- les assemblages pauvres qui contiennent le mobilier "minimal" , une ou deux catégories d'objets, souvent avec un ou plusieurs vases en argile ou bracelets en spondyle;
- les assemblages moyens qui contiennent 3 à 7 catégories d'objets;
- les assemblages abondants qui en contiennent 8 à 10;
- et enfin les assemblages très abondants qui en contiennent 13 et plus, jusqu'à 25.

Tabl. 3. Tableau des groupes de tombes en fonction du nombre de catégories d'objets

Groupe 1	Très pauvres	Tombes sans mobilier	24	8,20%
Groupe 2	Pauvres	Tombes à 1 ou 2 catégories d'objets	105	35,70%
Groupe 3	Moyennes	Tombes à 3 et jusqu'à 7 catégories d'objets	139	47,30%
Groupe 4	Abondants	Tombes à 8 et jusqu'à 10 catégories d'objets	15	5,10%
Groupe 5	Très abondants	Tombes à 13 et jusqu'à 25 catégories d'objets	11	3,70%
		Total:	294	100%

Ces cinq groupes comprennent tous les types de tombes, toutes les classes d'âge et les deux sexes. A l'exception évidemment des tombes symboliques, mais aussi du groupe de tombes à assemblages très riches: surtout représenté par des tombes symboliques, et dans une moindre mesure par les tombes à squelette allongé.

Un sixième groupe est latent, celui des individus qui n'ont pas de tombe dans la nécropole.

Tout ce qui est attesté dans les assemblages pauvres ou moyens l'est aussi dans les assemblages abondants ou très abondants. Il n'y a donc pas d'assemblages spécifiques pauvres ou moyens; ils ne se caractérisent que par l'absence des catégories d'objets rares. Symétriquement, alors qu'ils ne représentent que 3,7% des tombes, les assemblages très abondants concentrent 75% des différentes catégories d'objets. Sur les 83 catégories d'objets reconnues, la moitié environ ne sont attestées que dans ces assemblages.

Les assemblages très abondants, définis sur le critère du plus grand nombre de catégories d'objets, possèdent aussi le plus grand nombre d'objets par catégorie. Ils cumulent ainsi la plus grande diversité de types d'objets, de matériaux et de nombre d'objets. Dans cette diversité et cette abondance, se dessine un autre niveau de variabilité, celle des provenances – locales, régionales, supra-régionales – des matières premières

ou des ateliers (fig. 5). Ce niveau de diversité relève du coût économique et social du mobilier.

La richesse des tombes. L'assemblage d'une tombe symbolise la place qu'occupait le défunt dans la société: en effet, la très grande diversité des mobiliers obéit à des règles sociales et n'est pas le fait du hasard. Si les cinq (ou six?) groupes de tombes ne peuvent être compris en terme de classes d'âge ou de sexe, et ce, quel que soit le type d'inhumation, c'est que le statut du défunt obéit à des règles plus complexes que son appartenance à une classe d'âge ou de sexe. Son statut pourrait bien lui avoir été conféré par son rôle économique et social.

Les cinq groupes doivent alors être interprétés en terme de richesse socio-économique et être considérés comme des *classes* de tombes, sans mobilier, pauvres, moyennes, riches et très riches. La classe des tombes sans mobilier peut correspondre soit à des défunts très pauvres, soit à une classe "à part", tout comme la sixième classe, celle des défunts qui ne sont pas inhumés en nécropole.

Outre sa nature, son matériau et sa provenance, la valeur d'un objet peut aussi être augmentée par le temps de travail nécessaire à sa fabrication. Le temps de travail peut être inféré de la technicité de l'objet, mais aussi de la quantité: l'obtention d'une grande lame par pression au levier tout comme la composition d'un collier de 1900 perles par exemple.

Les perles sont d'autant plus nombreuses qu'une tombe est riche. Toutes les perles, quel que soit leur matériau, apparaissent dans des quantités qui vont de l'unité à la soixantaine, la centaine voire plusieurs centaines. Le fait que certaines tombes ne contiennent qu'une seule perle dans un matériau donné, tandis que d'autres en contiennent 500 du même matériau ne peut pas être aléatoire, et par contraste met en valeur un temps de travail plus long.

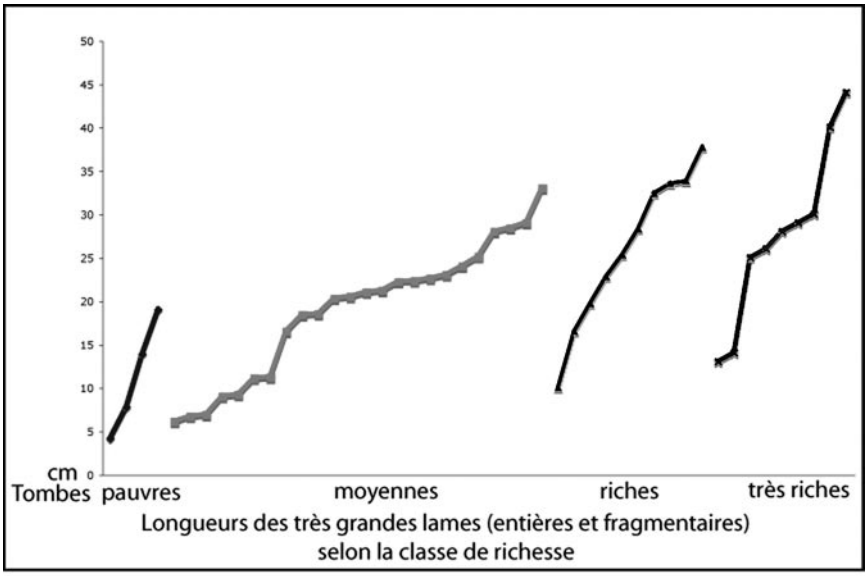
Enfin, la mise en place des tombes propremet dite nécessite un temps plus ou moins long selon la classe de richesse: la multitude observée – catégories d'objets, nombre d'exemplaires, complexité des associations, types d'inhumations, ... – qui caractérise les tombes très riches induit un temps de mise en place (de "fabrication") de la tombe beaucoup plus long que pour les autres classes de tombes.

Certaines catégories d'objets sont spécifiques des tombes très riches et ne trouvent pas d'équivalent, même dans un autre matériau, dans les tombes moins riches. La valeur de ces objets serait donc particulière. Il s'agit notamment des lances, fusaïoles, sceptres, diadèmes, figurines, dont la valeur pourrait symboliser, directement ou indirectement, une fonction sociale plus précise.

L'or n'est pas un critère décisif suffisant, puisqu'il est déposé dans les tombes pauvres comme dans les tombes riches.

Le matériel lithique dans les classes de richesse. Les proportions entre débitages domestique et spécialisé, ainsi que les longueurs maximales des très grandes lames,

diffèrent de ce qui est observé dans les villages. A Varna, et dans tous les autres ensembles funéraires de la région, les lames du débitage spécialisé représentent en effet au moins la moitié du lithique déposé dans les tombes: 50 à 68% (10–12% maximum en habitat). Les plus longues des très grandes lames entières oscillent ici entre 35 et 44 cm, tandis qu'un maximum de 33 cm avait été observé en habitat. Le débitage spécialisé paraît donc surtout consacré au domaine funéraire et les lames les plus longues lui être



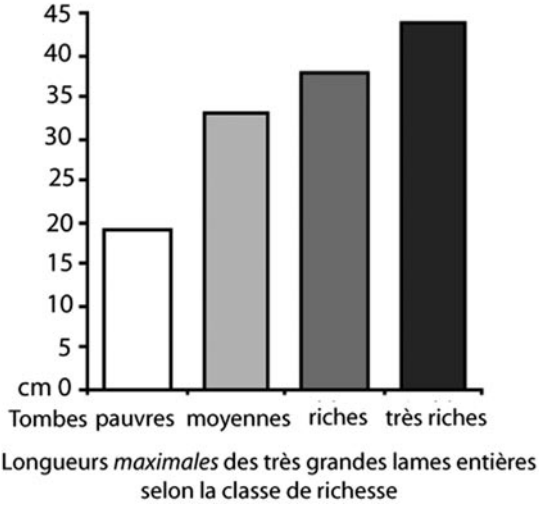


Fig. 7. Graphique des longueurs maximales de très grandes lames dans les classes de richesse des tombes de Varna

particulièrement réservées. Les très grandes lames débitées au levier paraissent avoir une signification complexe, du fait qu'elles sont systématiquement attestées dans les habitats et jouent un rôle remarquable dans les nécropoles.

Il est en outre possible d'affirmer que la longueur est réellement significative: dans certaines tombes moyennes ou riches (№ 39, 40, 256, 259), les fragments de différentes lames ont été déposés bout à bout, recomposant ainsi une longueur un peu plus importante.

Les tombes riches et très riches peuvent contenir des grandes lames de diverses longueurs ou fragmentaires, mais les très grandes lames de silex sont d'autant plus longues que la tombe est riche (fig. 7). Les lames les plus longues sont donc clairement associées aux statuts les plus élevés. Cette association s'ajoute elle aussi à la mise en oeuvre d'un temps de travail plus long et plus complexe pour les tombes très riches. Le débitage de très longues lames est, de l'avis des tailleurs actuels, un savoir-faire long, complexe et délicat, l'obtention d'une lame de 44 cm (comme celle de la tombe très riche № 1 de Varna) d'autant plus.

Un travail sur les figurines en os[19] a permis de mettre en évidence des parallèles intéressants. En effet, les figurines en os découvertes dans les habitats sont de petites et moyennes dimensions et façonnées sur des humérus de bovidés domestiques. La majorité de celles que l'on retrouve à Varna sont de très grandes dimensions (plus de 21 cm de longueur) et façonnées sur des humérus de grands bovidés sauvages (aurochs). On assiste donc à une sorte d'équivalence avec d'un côté le monde des vivants, de la vie quotidienne, des animaux domestiques, de la production domestique et des produits en silex ou en os de petites dimensions... ou de dimensions "normales"; et de l'autre, le monde des morts, des grands animaux sauvages, de la production spécialisée, des produits en silex ou en os de dimensions spectaculaires.

Pour finir, notons que la majorité des objets déposés dans les tombes sont neufs: c'est le cas des objets en or[20], de 80% des pièces en silex, et même de la céramique, peu ou très mal cuite (au contraire de celle des habitats): le mobilier d'un défunt ne constitue donc pas un assemblage d'objets personnels usés, bien au contraire.

Propositions d'interprétation sociale et économique des très grandes lames

L'ensemble de ces indices permet de proposer une équivalence entre tombe très riche et statut social élevé. Ainsi que celle entre statut social élevé et pouvoir.

D'une manière générale, une grande partie des assemblages des tombes très riches est constituée d'objets dont les centres de production sont très éloignés, régionaux, voire supra-régionaux: cuivre des mines d'Aïbunar dans la Stara Planina, très grandes lames des environs de Razgrad, dentales et spondyles de la côte nord égéenne au plus près, obsidienne de l'île de Milos dans le sud de l'Egée, etc. D'autres matériaux comme le marbre et le graphite pouvant provenir des Monts Balkans, des Rhodopes, du Rila, et l'or d'à peu près n'importe quelle rivière de Bulgarie.

En ce qui concerne le lithique, les très grandes lames relèvent de bien autre chose que d'une nécessité strictement économique. La fonction de ces grandes lames est manifestement plus sociale qu'économique, d'autant qu'elles ne sont pas utilisées en tant que telles (entières). Leur fonction économique est indirecte: elles ont joué comme un bien circulant, comme support de réseaux d'échanges et de relations à l'intérieur du groupe. Alors les très grandes lames, du moins lorsqu'elles sont entières, représentent-elles peut-être encore autre chose, comme une "monnaie de lames", au sens des monnaies de sel de M. Godelier[21].

Leur répartition géographique (sur tout le territoire de la ZCG) et leur fonction, avant tout sociale, permettent de penser qu'elles ont en quelque sorte fait barrage à l'obsidienne dont regorgeaient toutes les cultures limitrophes contemporaines. A une exception près: l'unique pièce en obsidienne de la ZCG qui se trouve dans l'une des tombes les plus riches de Varna. Présence significative, semble-t-il, quant à la liaison du statut social avec le contrôle de la circulation des biens et des réseaux de relations.

Toutes ces "multitudes" accumulées semblent bien montrer que, dans cette société, un statut social élevé fonde son pouvoir surtout sur le contrôle de la circulation des biens et le contrôle des réseaux de relations entre villages et entre régions, et non pas sur le contrôle de la production. En d'autres termes, qu'un personnage de haut statut a le pouvoir, jusqu'après sa mort, de drainer un large réseau de productions et de matériaux. Ce qui signifie contrôler la distribution, les échanges et donc les réseaux d'alliance. Les richesses sont accumulées individuellement, et même pour des enfants (deux tombes riches d'enfant, l'un de 4–6 ans, l'autre de 8 ans).

Accumulation, contrôle et prestige, voire ostentation, sont tels que des richesses peuvent être produites par les vivants, pour être aussitôt perdues pour la société en suivant les morts dans leur tombe. Cette accumulation d'objets le plus souvent neufs pourrait s'être constituée du vivant du défunt, sous forme d'une sorte de "trousseau de mort", comme on a pu accumuler un trousseau de mariage dans de nombreuses sociétés.

En effet, deux constations permettent de considérer que le mobilier a été réalisé pour l'inhumation:

- la prépondérance dans chaque assemblage, d'objets complètement neufs et inutilisés, comme le prouvent des matériaux très ductiles tels que l'or, ou des objets inutilisables tels que les vases céramiques en argile très peu cuite;

- la présence d'un éclat de nacelle, accident rarissime du débitage par pression, qui a été déposé dans une tombe (№ 54) avec sa très grande lame d'origine, tous deux de provenance lointaine puisque les sources et ateliers de taille des très grandes lames sont éloignés de plus de 150 km de Varna.

Dans ce contexte, le point crucial repose sur les délais qui séparent, d'un côté, le moment de production de l'objet et celui de son dépôt dans la tombe, de l'autre, le moment du décès et celui de son inhumation (fig. 8).

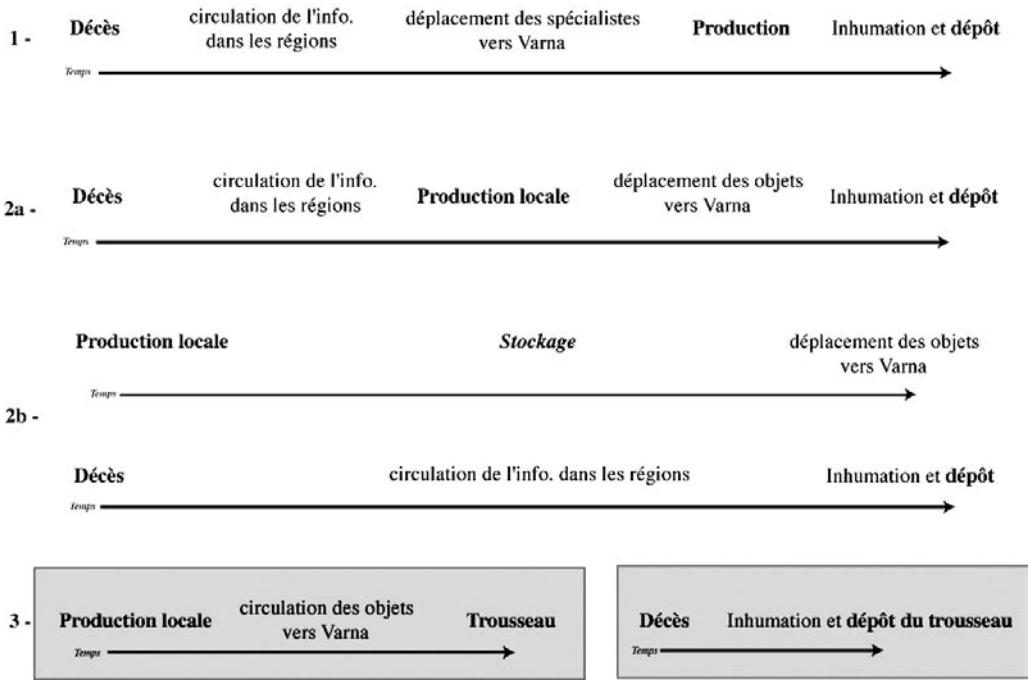


Fig. 8. Schéma des délais entre les différents moments de production, circulation et dépôt des assemblages funéraires de Varna

1. Si le ou les objets sont fabriqués sur place, près de la nécropole, au moment de l'inhumation, le délai portera obligatoirement sur le temps de circulation de l'information quant au décès, le temps de déplacement des spécialistes jusqu'à Varna et le temps de la production: il faut alors disposer du corps du défunt (qu'il s'agisse de le conserver d'une manière ou d'une autre, ou de le laisser pourrir) pendant un temps relativement long, en attendant la transmission de l'information, l'arrivée des producteurs et la production.

2. Si le ou les objets sont fabriqués dans les régions productrices et sont envoyés sur le lieu d'inhumation, deux options se présentent:

2a – Sont inversé les moments de production et de déplacements vers Varna, et les délais sont donc comparables à ceux de l'hypothèse précédente (**1**), en particulier entre décès et inhumation.

2b – Le délai peut porter uniquement sur le temps de la circulation de l'information et celui des objets ou des gens qui les apportent, si les objets funéraires sont produits plus ou moins en permanence et stockés dans les régions productrices. Le délai est alors maximum entre production et utilisation, et maximum entre décès et inhumation.

3. Enfin, si les objets sont produits dans un but funéraire et acquis individuellement par la personne de son vivant, elle se constitue alors un "trousseau funéraire" au fur et

à mesure de son existence et de ses moyens; le trousseau est conservé jusqu'au moment de l'inhumation. Le délai est alors maximum entre le moment de la production et celui de l'utilisation, mais minimum entre l'acquisition et l'inhumation puisque le défunt possède déjà les objets.

Les configurations 1 et 2 impliquent un délai maximum entre décès et inhumation peuvent être écartées pour 80% des tombes puisque ce sont des inhumations primaires, les squelettes en connexion anatomique. Elles ne pourraient être retenues que pour les tombes à inhumations secondaires et, éventuellement, les tombes symboliques. C'est pourquoi, au moins en ce qui concerne les tombes à squelette replié ou allongé, nous retiendrons la troisième configuration, celle du trousseau funéraire.

Enfin, Varna paraît bien une nécropole exceptionnelle: dans toutes les autres nécropoles et ensembles funéraires, mêmes des nécropoles qui comprennent autant, voire plus de tombes que Varna, les mêmes classes de tombes apparaissent, et dans les mêmes proportions, à l'exception du niveau le plus élevé des tombes très riches, qui n'est attesté qu'à Varna[22].

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КРЕМЪЧНИ ИЗДЕЛИЯ ОТ ГРОБОВЕТЕ НА НЕКРОПОЛА ВАРНА I

ЛОРАНС МАНОЛАКАКИС (ПАРИЖ)

В България по време на енеолита (4900–4300 г. пр.Хр.) специализирали се занаятчии са използвали сложна отцепваща техника за производство на възможно най-дългите кремъчни пластини. Тази технология е била твърде скъпа, тъй като в ежедневието пластините са разделяни на малки сегменти.

Находките от некрополите предлагат възможното обяснение, а именно, че дългите пластини са били престижни изделия, свързани с висок социален статус и играещи символична роля за цялото общество.

THE LIFE HISTORIES OF *SPONDYLUS* SHELL RINGS FROM THE VARNA I ENEOLITHIC CEMETERY (NORTHEAST BULGARIA): TRANSFORMATION, REVELATION, FRAGMENTATION AND DEPOSITION

JOHN CHAPMAN (DURHAM), BISSERKA GAYDARSKA (DURHAM), VLADIMIR SLAVCHEV (VARNA)

Introduction

The current chapter in this volume dedicated to the life and works of the late Ivan Ivanov deals directly with the site with which he has long been associated and which he did so much to popularise. One of the principal characteristics of the Varna I Eneolithic cemetery is the presence of so many exotic grave goods – whether gold, copper, carnelian, nephrite, marble and marine shells[1]. One class of marine shell finds stands out for its size and attractive visual qualities – and perhaps even for its psychedelic powers[2] – the *Spondylus* and *Glycymeris* shells made into rings, pendants, beads and other small ornaments.

These two species of marine shell were frequently selected for the making of ornaments in the Neolithic and Copper Age of the Balkans and Greece and for trade over a wide area of both South East and Central Europe. The dominant species of the two is *Spondylus gaederopus*, the less common *Glycymeris*. Both are currently local to the Mediterranean, especially the Aegean and the Adriatic, because of their warm water temperature and its medium salinity; a Black Sea origin has been proposed[3] but the analytical and ecological evidence does not support this view[4]. The shells have contrasting habitats – *Spondylus* attached to rocks or coral, often in deep water, and *Glycymeris* in shallower, sandy locations. Collection of the shells would have been a seasonal or discontinuous practice requiring considerable effort for coastal communities, who would have discovered that shells collected from underwater were of better quality than those from the beach[5].

Previous research into *Spondylus* shell ornaments has concentrated on their distribution and typology, together with the social implications of their dissemination for local societies. In an early and successful example of archaeological science, N. Shackleton and C. Renfrew[6] sought to demonstrate by isotopic analysis that the *Spondylus* rings of the Balkan and Central European Neolithic were derived from Mediterranean sources; these shell rings were the exemplar of what C. Renfrew[7] termed the prestige chain form of exchange, an indication that Neolithic communities sought exotic goods conferring status on their bearers. The typological studies of C. Willms[8] and M. Séfériades[9] indicated the likelihood of local or regional consumption zones based upon different shell ornament forms.

In this chapter, we focus purely on shell rings and the evidence that they carry on their material form for their life history. There are three aims in this voyage around marine material culture: (a) an exploration of the life history of shell rings, by developing the social implications of the *châine opératoire* approach; (b) an update of our previous study of the Varna I *Spondylus*/ *Glycymeris* rings[10] to take into account of new information from the Ivan Ivanov VEN Archive; and (c) a study of the biographies of the shell rings from Varna I, including the results of a re-fitting exercise. These three strands will be interwoven into some general conclusions relating the shell rings to the buried population and the wider social context of the Varna I cemetery.

The châine opératoire of shell rings

André Leroi-Gourhan introduced the term "*châine opératoire*" to lithic studies in the 1960 – at the time, as with *Spondylus* studies now, a field dominated by typological studies but with new approaches competing for attention[11]. After numerous developments, not least by Geneste, the approach is now the mainstream way of creating rigorous interpretations of Palaeolithic lithic assemblages. The same approach has also been adapted by, *inter alia*, ceramicists[12] and archaeo-botanists[13]. In its essence, the *châine opératoire* seeks to define stages in the fabrication of a product, each of which can be recognised by diagnostic débitage.

It is only more recently that attention has been paid to the *châine opératoire* of shell rings, especially the early stages of production. The summary descriptions of the Sitagroi shell rings[14] constitutes at present one of the most detailed published descriptions of *Spondylus/Glycymeris* ornaments. More than ten years previously, however, A. Tsuneki[15] identified five stages in the manufacture of shell rings, not always in the given order (!):

- Stage 1: the ventral margin of the shell is ground down to smooth the rugged natural margin;
- Stage 2: the outer surface of the shell is ground down to reduce the thickness of the shell;
- Stage 3: the shell is pierced inside the pallial line and the hole is enlarged through tapping;
- Stage 4: the periphery of the hole is ground down until it is large enough to form a ring; and
- Stage 5: the hinge teeth, the ears and other projections are ground down and the sides are smoothed.

The same five stages were outlined by M. Miller[16], on the basis of ethnographic analogy with Hokoham shell production techniques. A. Tsuneki[17] further proposed that stone querns, drills, small hammerstones and a small hand-held grindstone were the tools necessary for this task, as well as water and sand as an abrasive. The same author[18] made the vital point that the two valves of the *Spondylus* were of different thickness, protrusions and colour.

There can be no doubt that the making of *Spondylus/Glycymeris* rings involved considerable skill and much effort. But this productive effort was surely worth it, for the result of this embodied labour would have been a reputation for skilled fine craftsmanship, fine costume ornaments for display and potentially prestigious objects for trade to inland communities. Both A. Tsuneki and M. Miller investigated the question of local manufacture of shell rings at, respectively, Late Neolithic Dimini and Neolithic-Copper Age Sitagroi. A. Tsuneki[19] argued from the high rate of fragmentation of the Dimini rings that they were broken in the course of making. P. Halstead rejected this claim, arguing that many of the broken rings were also burnt, suggesting deliberate, competitive destruction in an act of conspicuous consumption[20].

The research by A. Tsuneki, P. Halstead, M. Miller and M. Nikolaidou comes closer than do other researchers to the "biographical" approach for objects, current now in social anthropology for 20 years[21] but, in each case, one has the impression that the objects are being studied in order to investigate an extraneous factor (trade, prestige, local production) rather than as things in their own right. There are many aspects of prehistoric shell rings that are worth consideration as the form of the materiality in which the rings existed for past individuals and communities. The underlying concepts for making shell rings are twofold: transformation and revelation.

It seems highly probable that the acquisition of each shell was an individual act, since the social practice of diving 3–5 m under the sea to retrieve a shell firmly attached to the rock would have required a sharp blow to dislodge it, suggesting an individual approach to the shell without the "interference" of other shells in bags or nets.

The overcoming of the resistance of the shell to "capture" implies the development of specific, embodied skills. Thus, from the outset of its "domestication", the shell would probably have been linked to a specific individual – the diver who brought the shell from the deep, dark and potentially dangerous water into another medium – the light, airy, warm Mediterranean beach. This initial transformation from live shell in its natural habitat to an unnatural, i.e., domestic location in a settlement paralleled that of, e.g., mussel collecting from underwater reefs in that the eating of the interior of the shell preceded the creation of artificial finery.

Examination of unmodified *Spondylus* and *Glycymeris* shells indicates such a wide variety of shapes and sizes that, even from the time of discovery, shells may have had their own distinctive character – their individual differentiated features, in terms of colour, length of spines and spikes and overall dimensions. To an experienced shell-ring maker, this first impression would have spoken of the potential of a particular shell for making a large, splendid ring, a medium-sized attractive ring or a small ring fit only for an exchange supplement rather than with a chance of having its own distinguished career.

One feature of shell rings that has attracted much attention[22] is their small size (interior diameter), which makes it impossible for many rings to be worn by anyone, even

a young child (cf. experiments with a 6-year-old[23]). The implication is that, at an early stage of selection of a shell, which direction the shell can follow in a divergent biographical pathway – bracelet for wearing or ring for display – will be known. It is also possible that a young person who fits a small shell ring onto their arm would not have been able to remove it after the growth of their hand bones, so that, unless it is broken, the ring remains on the forearm (cf. the discussion about how to wear different types of copper bracelet[24]). These choices are equivalent to three different variants on the theme of personhood – direct participation in the costume of one or many individuals; linkage through production and/or exchange with one or more individuals; or coercive identification with an earlier stage of personhood for the rest of an individual's life. These comments underline the importance of the initial choice of a *Spondylus/Glycymeris* shell from their rocky habitat.

The second transformation concerned the grinding of the outer surface of the shell – the removal of the spines, spikes, ridges and protuberances that make the *Spondylus* so distinctive a species in and out of the water. There are two elements in this multiple-stage transformation – symmetry out of often strong asymmetries and smoothness out of roughness. There are four asymmetries in the left *Spondylus* valve – the left and right shape of the outer surface, the top and bottom shape of the outer surface, the section through the valve and the much greater roughness on the outside of the valve in comparison with its inner surface (fig. 1). The making of a shell ring gives a real sense of the creation of a harmonious cultural order out of a chaotic natural shape. The resultant

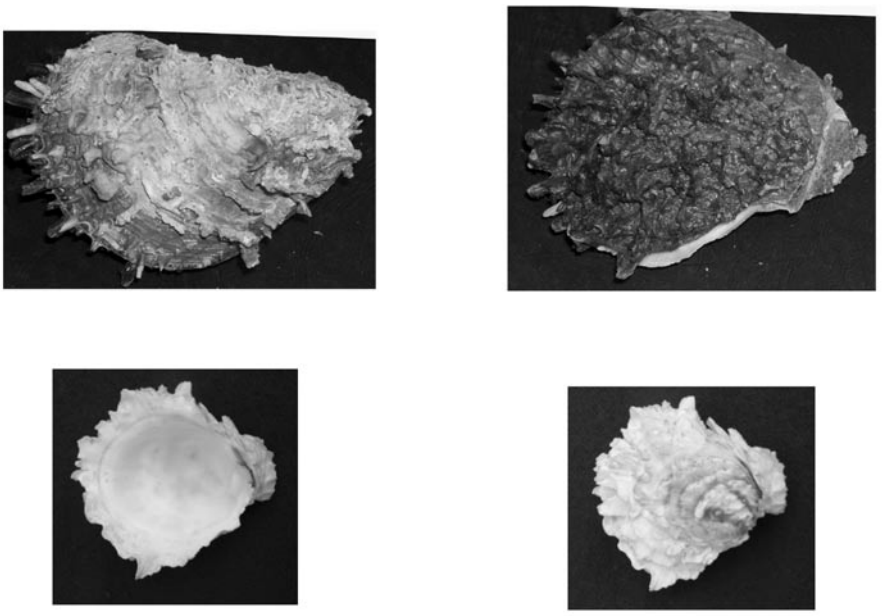


Fig. 1. *Spondylus* shell asymmetries: left and right, inner and outer

shape seeks bilateral symmetry in three dimensions: left–right, top–bottom and overall thickness of ring section. Even though there is a roughness or natural pitting remaining on the surface of many rings, there is a far greater degree of smoothness after manufacture than on the original raw shell surface. The right valve is much larger, so the shape of right-valve rings is less symmetrical than that of left-valve rings (fig. 2). Nonetheless, there is a strong tendency to a right-to-left symmetry and smoothness on both inside and outside surfaces.

The second transformative process is also a process of revelation insofar as different degrees of grinding and polishing can reveal a variety of natural features that may well be prized for their inherent aesthetic attraction as much as for "bringing out" the distinctive qualities of each shell ring. Just as the excavation of a 2-cm layer across a site may obscure or remove distinctive features, so the grinding of an additional 2 mm from a shell surface may well destroy a layer of red colour but uncover a lustrous, porcelain-like surface. Thus, making a shell ring involves prediction, from past experience and current practice, of the results of further grinding for the appearance of the shell. In this sense, there is an analogy between shell ring-making and flint-knapping, with experience-led prediction of the results of the next grinding/blow the basis of the craftsperson with high skill levels. It is easy to appreciate that the differential grinding away of successive surface shell layers can produce remarkably divergent "natural" features that go a long way to defining the unique character of a shell ring. There are, in addition, other, non-revelatory traces of the process of making a ring, including perforation, extra polishing and grooving.

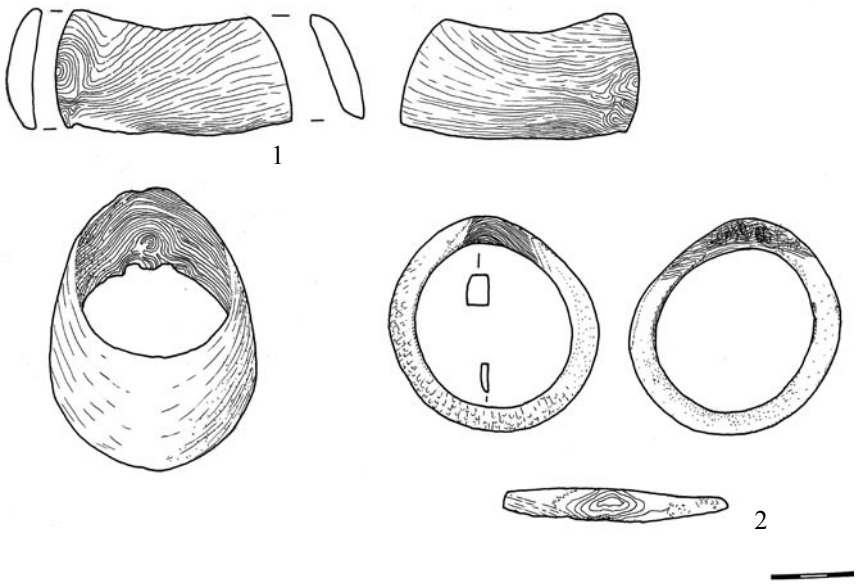


Fig. 2. Left-valve ring and right-valve ring, Durankulak cemetery

This biographical approach to the transformation of marine shells, the revelation of their "natural" features and the addition of artificial features emphasises the reflexive processes of individuation characterising both the shell and the social actor. What appears to be a reductive, homogenizing process of manufacture is in fact an endlessly varied series of choices of what to reveal and what not to reveal, starting from an individual shell recovered by a specific diver from a known place. By the time that a shell ring has been created, its materiality has already been defined by a series of individual choices. The individual biography of the shell has already become intertwined with the biographies of several persons.

The next part of the shell's biography concerns the main period of its life. Four specific traces of use can be recognised – fragmentation, wear, burning and chipping. These different traces often interact with each other to form a sequence of events, often indicating a complex life for an individual shell ring. The first practice concerns the extent to which we can demonstrate that the frequent fragmentation of shell rings is the product of deliberate human action, rather than taphonomic processes. Support for deliberate fragmentation would extend the spatial and often the temporal biography of the shell ring to other people and places, thereby adding even greater complexity to the narrative. Signs of burning or wear over an earlier fracture provides evidence of a multi-stage use life, demonstrating that there is still life in a deliberately fragmented shell ring. Any use-life marks on the shell ring make a visual statement about the object and its biography, leaving room for negotiation over whether or not the marks increase the value of the ring through a diversified suite of relations to more people or devalue the ring through damage to its original aesthetic properties. The main stage of usage in the biographies of shell rings offers further possibilities for individuation of shell ring life histories, adding to the revelation of natural features and the incorporation of artificial making-marks.

A final stage in the shell ring biographies is the post-depositional traces that accrete to the ring during and/or after burial. While these marks are relevant to the prehistoric life history of the objects only if the rings are disinterred or robbed from the grave and brought back into an active "second life", they are important signs of the taphonomic histories of the rings.

The important general point here is that, because of the materiality of objects, aspects – perhaps many diverse aspects – of their life stories are recorded on the objects themselves. The object thus contains its own self-referential cultural memory, embodying parts of its own experience and aspects of its relations with different persons. The *Spondylus/Glycymeris* rings from the Varna I cemetery offer examples of the creation of diverse object biographies.

The Spondylus/Glycymeris shell rings from the Varna I cemetery

In a previous study of the *Spondylus* shell rings from the Varna and Durankulak cemeteries, an overall survey was presented of *Spondylus* (and *Glycymeris*) mortuary

deposition in terms of the social context of enchainment and fragmentation[25]. A detailed consideration of the possible taphonomic factors affecting the Durankulak and Varna I burial conditions led us to deny the importance of taphonomic factors in the fragmentation of the shell rings at either site; this left open the opportunity to invoke deliberate social practices in this widespread breakage. Diachronic and inter-site differences were noted in the distribution of ornament graves, gender and age associations with shell rings, sidedness of shell ring placement, their fragmentation ratio (the ratio of complete: fragmentary rings), the completeness index of each ring, the distribution of complete and fragmentary rings per grave, their associations with rings of other materials (copper and marble) and their frequency in *Spondylus*-rich graves[26]. The conclusions were developed prior to any re-fitting exercise, and therefore based upon analyses of the unpublished Varna I cemetery documentation. The three main conclusions were:

- a clear diachronic trend towards increasing ring fragmentation in the Black Sea Neolithic and Eneolithic at Durankulak;

- a quantum leap in ring fragmentation in the Varna I cemetery;

- a much larger quantity of shell fragments in graves, whether from the same or from different rings, in the Late Eneolithic than before.

These general, archive-based conclusions did not take into account the state of the actual rings themselves. Nonetheless, these provisional conclusions were so interesting that a study of the original shell rings was considered to be an important aim of further research. The total number of rings studied from Varna in 2006 was 219 rings or ring fragments, with 16 rings or ring fragments unavailable for study – mostly because on display in other museums. Since a primary purpose of the re-fitting study was the comparison of each ring with every other ring, these "absences" are regrettable; the re-discovery of the fragments may yet bring fresh results for this study. The study included two basic elements – a detailed record of all the rings and a re-fitting exercise. A detailed recording was made of the *Spondylus/Glycymeris* rings in terms of their dimensions, completeness, type of fractures, condition, natural features, production traces, use traces and post-depositional changes. Sketches of all the rings are complemented by a photographic record of a sample of rings and line drawings by Ms. Vesela Yaneva (figs. 8–15). The re-fitting exercise consisted of locating all of the shell ring fragments in the same room and seeking joins between each fragment and all of the other fragments. The potential results comprised three main possibilities: joins between fragments in the same grave; joins between fragments buried in different graves; or the absence of joins. The study of the Varna I shell ring assemblage was carried out in Easter 2004, at the Archaeological Museum of Varna, with the kind permission of the Director, Dr. Valentin Pletnyov. This chapter has benefited greatly from the recently achieved availability of the Ivan Ivanov VEN Archive. The results of the detailed study of the shell rings for the purposes of reconstructing their individual biographies led to some interesting and important results. We shall consider these general results first, as an update of the

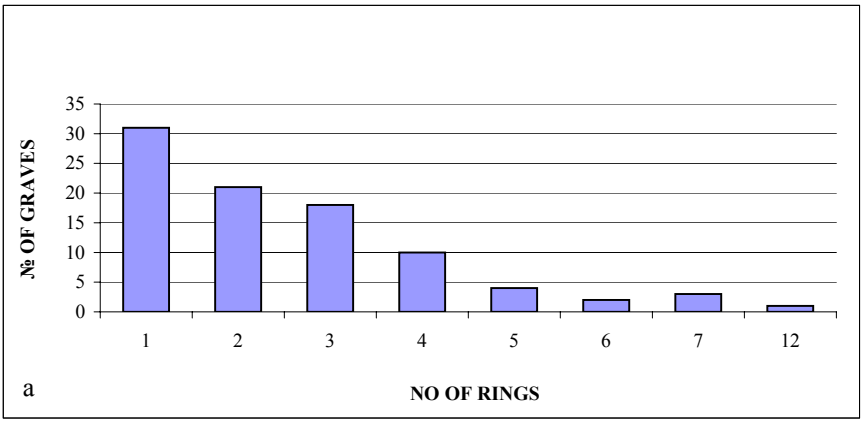
2004 research, before turning to the more specific results of the analysis of the *châine opératoire*, which includes the re-fitting exercise.

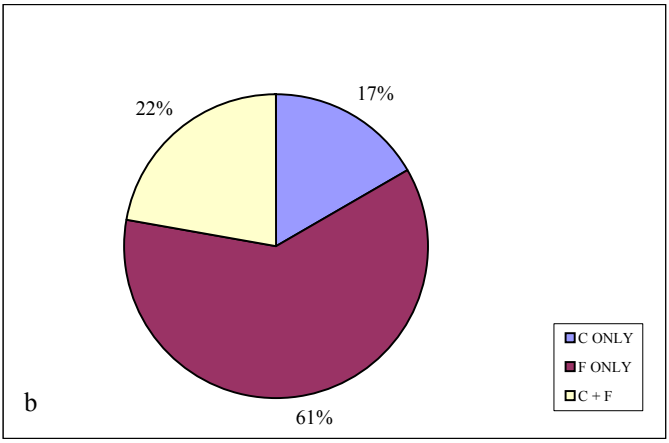
The Varna I Spondylus rings re-visited

The increase in sample size as a result of the new archival information brings the total of *Spondylus* rings or ring fragments studied at first-hand to 219 – an increase of 35 pieces. The pieces derive from a total of 90 graves – an increase of 20 over the 2004 study. The distribution of shell rings – whether complete or incomplete – by grave indicates a broader suite of mortuary choices than was previously thought (fig. 3a), with as many as 12 rings placed in the same grave but with the same peak at a single ring in a grave as before. The proportion of graves with only complete rings as compared to graves with only shell ring fragments and those with both is broadly similar to the previous study, with a majority of graves with fragments only (fig. 3b). The overall Completeness Index for the total assemblage is the same as published before, with the main peak falling between 10% and 40% of the ring (fig. 3c). This indicates a far stronger commitment to ring breakage at Varna I than in any phase of the Durankulak cemetery.

The complexity of the pattern of ring and fragment deposition at Varna is shown by the variety of combinations of partial, partially-re-fitted, completely re-fitted and unbroken rings in the graves. Taking "complete" rings as an example, most of these rings were indeed unbroken but a small percentage were re-fitted to complete from the fragments in a particular grave. In rare cases, four fragments in a grave could be conjoint to form a complete ring but, more usually, there were two or three fragments (fig. 4). There is a slight possibility, based upon differential wear or burning on two re-fitting fragments, that fragments from the same ring were broken in another context, with the fragments experiencing different life histories before being re-united in the grave. But this is a rare phenomenon at Varna I.

The number of complete rings found per grave varied from the most common frequency of one, with fewer cases of two rings, to increasingly rare cases of four, five and seven (fig. 5a). The distribution is patchier but broader than in the 2004 study but shares the earlier peak at a single ring. There were also frequent cases of the deposition of incomplete rings (fig. 5b). The basic distribution of the number of fragmentary rings plotted against the number of graves produced a lognormal distribution, as in 2004, with deposition of a maximum number of 10 incomplete rings. In graves with only fragmentary rings, there are often surprisingly large numbers of ring fragments (fig. 5c). While the peaks fall at one, two or three fragments, there is a broader distribution than in 2004, with up to 17 fragments in a single grave. The number of rings represented in graves with both complete and fragmentary rings (the so-called "C/F graves") also showed a broader distribution than in 2004, with a peak of 3 rings per grave as against peaks of 2 and 3 rings in 2004 (fig. 5d).





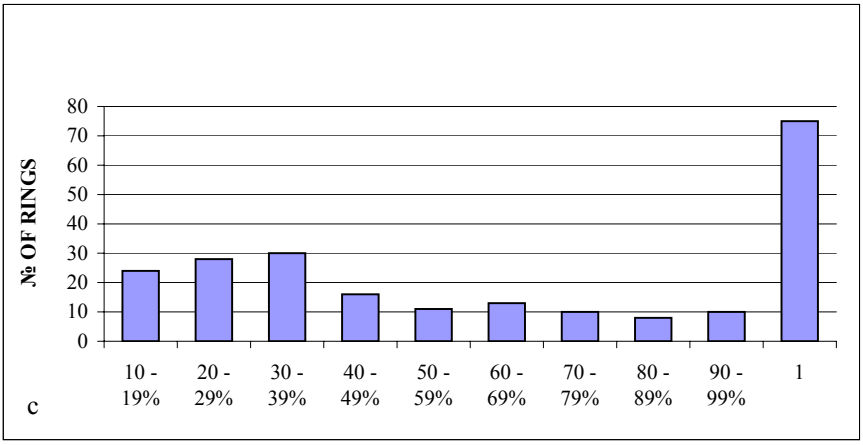


Fig. 3. a – number of rings per grave/context; b – ring combinations by graves; c – completeness indices, shell rings

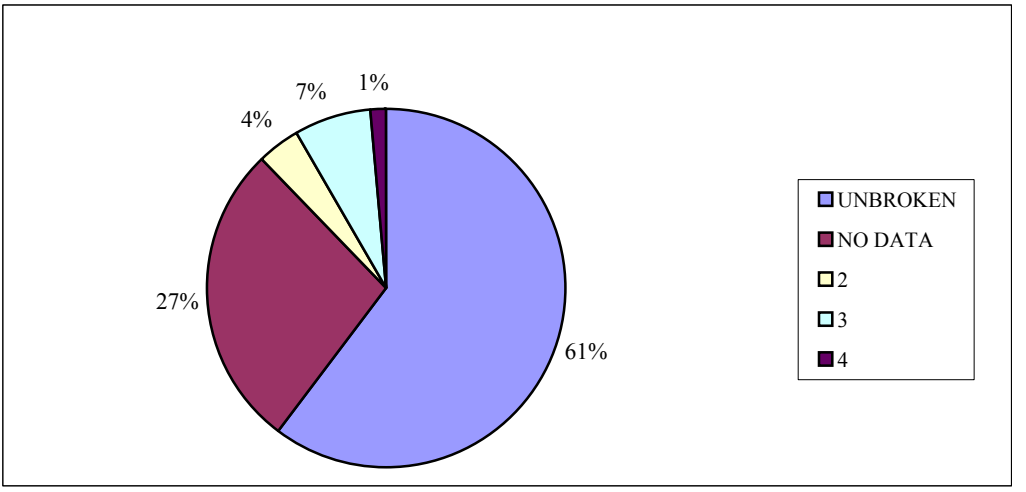


Fig. 4. Number of fragments re-fitted to whole rings

There is a remarkably varied suite of combinations of *Spondylus/ Glycymeris* rings/ ring fragments in the Varna I graves. The distributions of fragment combinations in graves with only fragmentary rings is presented below (fig. 6a–e). Two points stand out – the broader range of combinations, with graves containing up to 10 rings, and the predominant choice to deposit one fragment from each ring in the grave, in order to symbolize the missing parts in use or discarded elsewhere, outside the grave. The same trends occur in C/F graves (fig. 7a–c), with occasional exceptions (the peak for 3 ring-graves of 1 complete, two re-fitting fragments and a single fragment: fig. 7a). What is intriguing is that, with a few exceptions in graves with 2 or 3 rings, almost all of the C/F graves have an individual pattern of ring/ring fragment deposition, each shell assemblage slightly different from every other. This may well be a sign that the individuality associated with the dead person or the memory of the dead person (in the cenotaph graves)

The new analyses demonstrate an overall pattern of shell ring/ring fragment deposition – a unified trend of fewer graves with higher numbers of rings. This represents a typical lognormal distribution, that would seem to exclude binary categories such as "shell-rich graves" and "shell-poor graves". While there are many rings that were never broken and remained complete for the whole of their lives, equally many rings were broken and all of their pieces were placed in the same grave. But there is a significant number of ring fragments that cannot be re-fitted to whole, with missing parts elsewhere, whether near or far. Let us now turn to a more detailed analysis of the biographies of the Varna I shell rings.

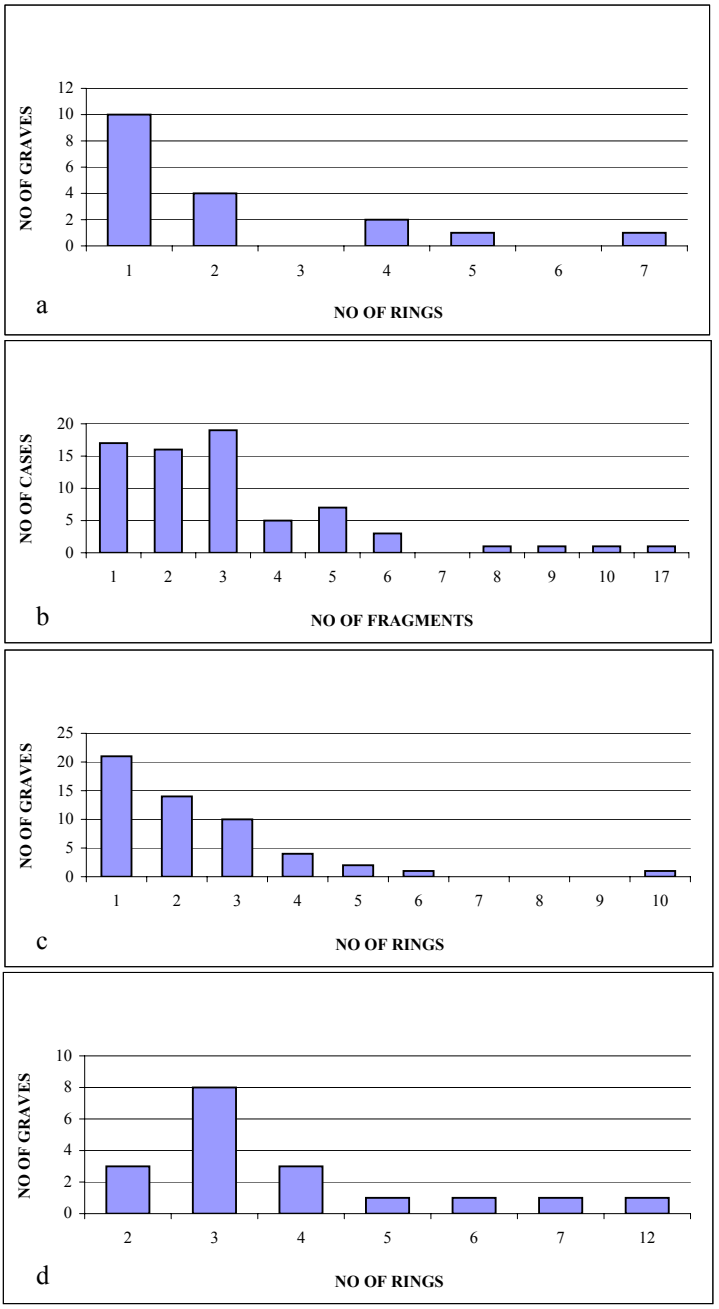


Fig. 5. a – number of complete rings per grave; b – number of fragmentary rings per grave; c – number of fragments comprising fragmentary rings; d – number of complete/fragmentary rings per grave

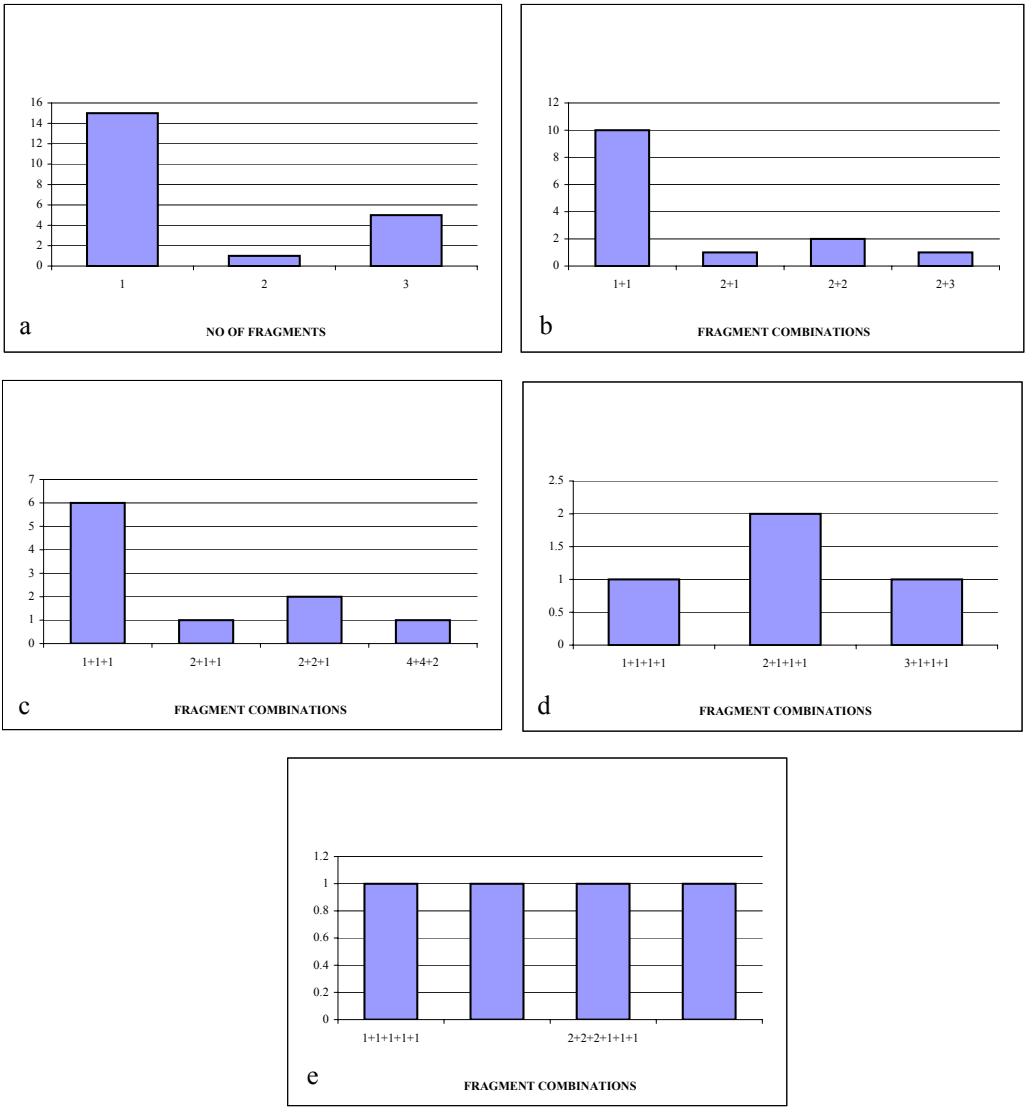


Fig. 6. a – number of fragments in graves with 1 ring; b – number of fragments in graves with 2 rings; c – number of fragments in graves with 3 rings; d – number of fragments in graves with 4 rings; e – number of fragments in graves with 5, 6 and 10 rings

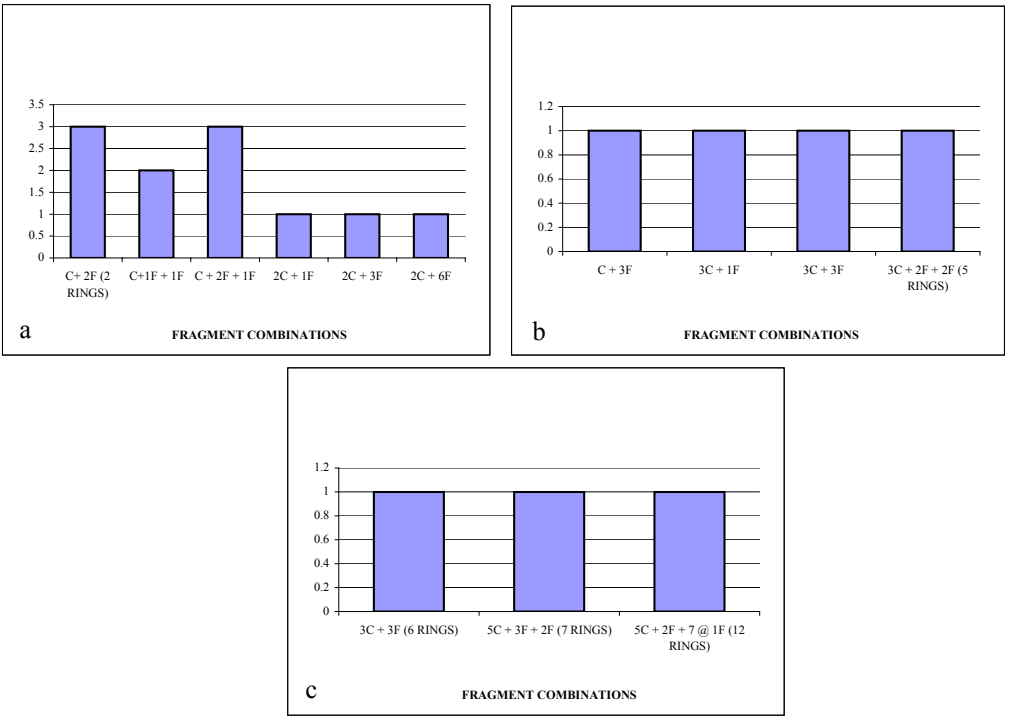


Fig. 7. a – fragment combinations in graves with complete/fragmentary 2 and 3 rings;
b – fragment combinations in graves with complete/fragmentary 4 and 5 rings;
c – fragment combinations in graves with complete/fragmentary 6, 7 and 12 rings

Shell ring biographies

An obvious starting point in shell biographies is the distinction between the choice of the right and the left valve for making rings. At Late Neolithic Dimini, Northern Greece, for example, left valves were used exclusively to make small rings while right valves were broken down into smaller parts to make beads and pendants[27]. This was not the case in the Black Sea zone, where massive right-valve rings were characteristic for the Neolithic Hamangia group and slender left-valve rings typified the Copper Age[28]. This is the pattern found at Varna I – all of the rings and ring fragments were made from left valves.

The *Spondylus* rings from the Varna I cemetery neatly illustrate the principles of transformation and revelation discussed above. The rings have been coded for the presence/absence of types of natural features, as well as the frequency of their occurrences. Traits relating to their production, their use-lives and any post-depositional features have been fully described for each ring. The term "pre-depositional feature" refers to the sum total of natural, production and use-life features – all of those traits that manifested the shell ring biography in all its simplicity or complexity. The following features, that are illustrated on the rings below (figs. 8–15), have been observed (table 1):

Table 1. Features of *Spondylus/Glycymeris* rings at Varna I cemetery

Natural	**Production**	**Use-life**	**Post-depositional**
Notch (fig. 11a)	Polishing (fig. 11c)	Wear (fig. 10c)	
Hinge (fig. 11c)	Perforation (fig. 11b)	Burning (fig. 8c)	
Holes (fig. 8a)	Groove (fig. 9a)		Calcareous deposit (fig. 11d)
Sculpting (fig. 10a)			Other deposit (fig. 10b)
Depression (fig. 10a)			
Pitting (fig. 10d)			
Heavy Pitting (fig. 8b)			
Lines (fig. 9b)			
Complex Lines (fig. 9d)			
Wavy Lines (fig. 8d)			
Garlands (fig. 11c)			
Red colour (fig. 9c)			

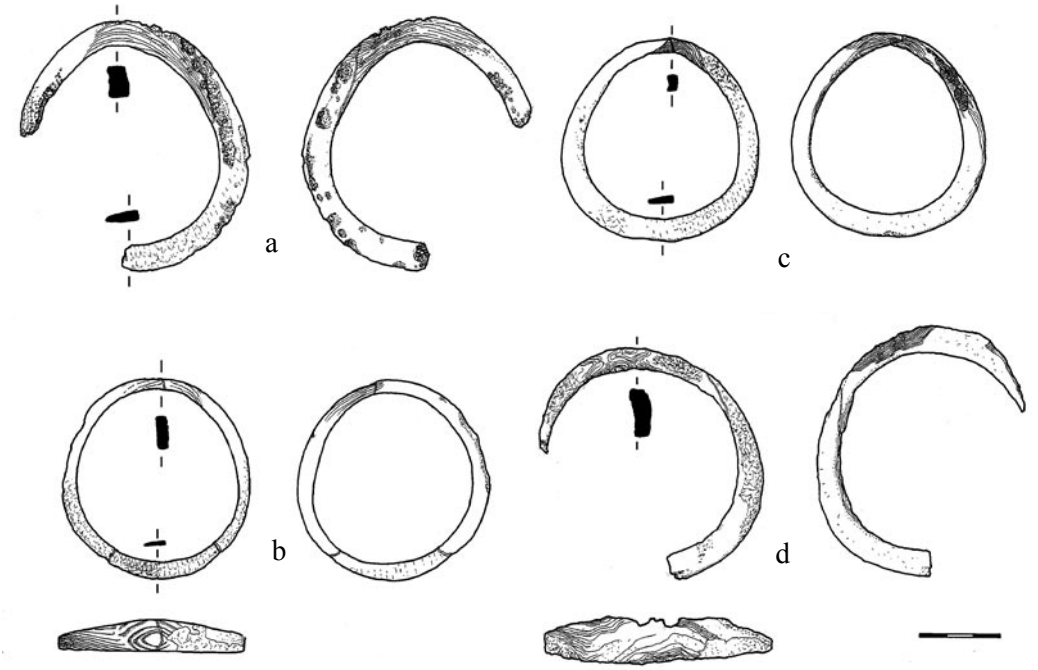


Fig 8. *Spondylus* rings from VEN: a inv. № 2963, grave 154, complete ring 5;
b – inv. № 2926, grave 71, fragment 2, c – inv. № 3336, grave 99;
d – inv. № 2956, grave 143, fragment 1

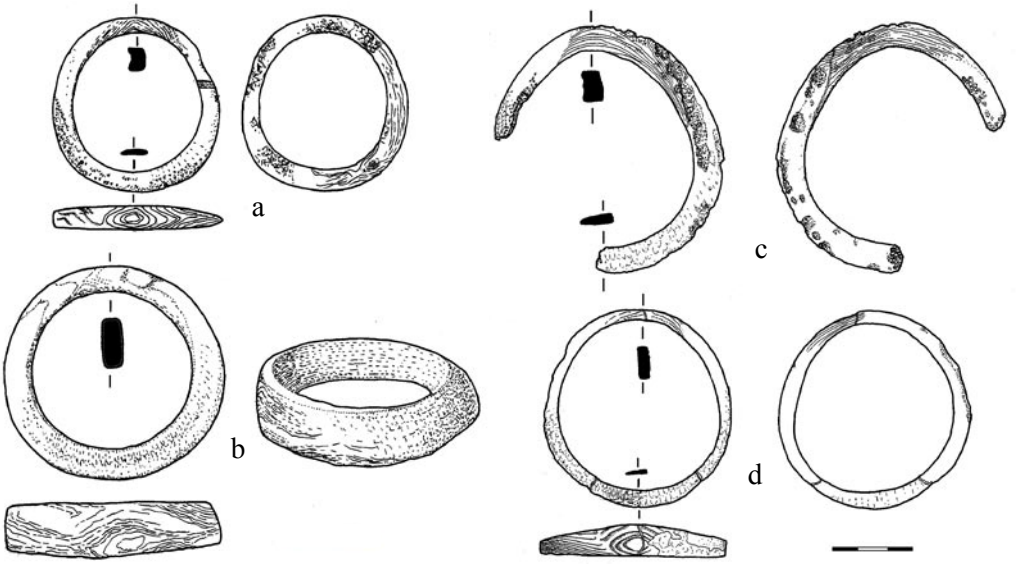


Fig. 9. *Spondylus* rings from VEN: a – inv. №. I-2922, grave 66, complete ring 3; b – inv. No. 3326, grave 97; c – inv. No. 2926, grave 71, fragment 1; d – inv. № I-2963, grave 154, complete ring 7

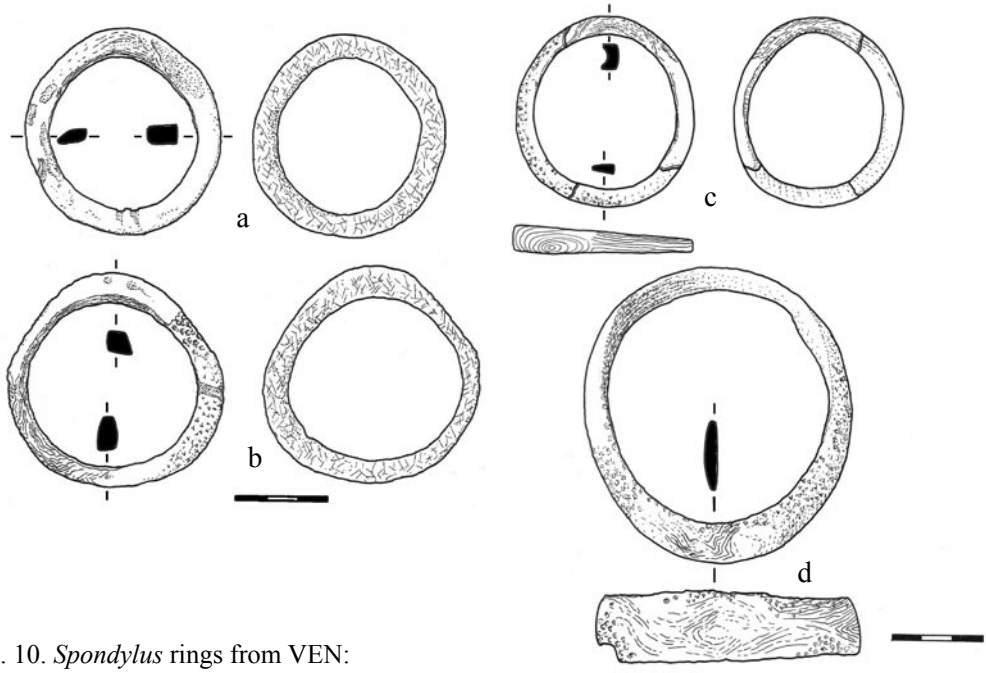


Fig. 10. *Spondylus* rings from VEN:
a – inv. № 2938, grave 108, fragment 1; b – inv. № 2933, grave 100; c – inv. № 2942, grave 108, complete ring 2; d – inv. No. 2954, grave 119, compete ring 3

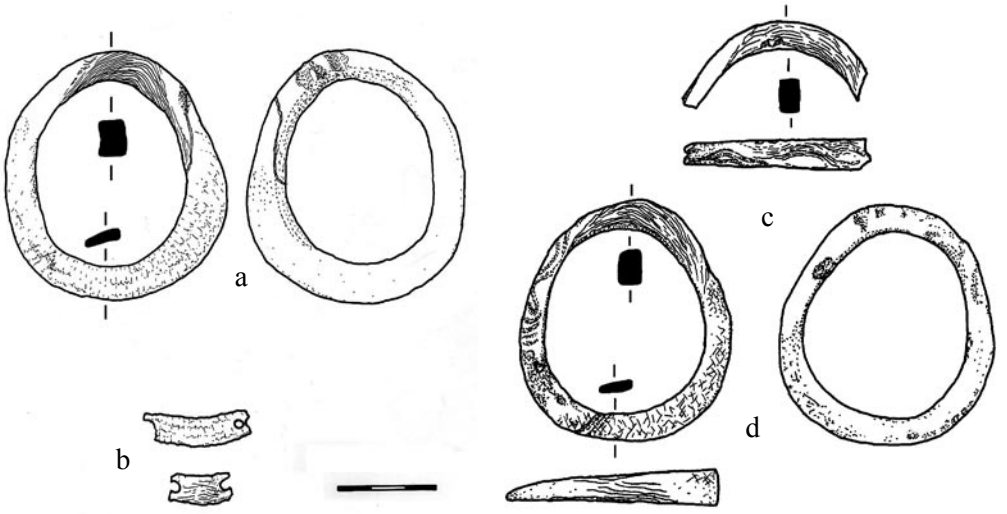


Fig. 11. *Spondylus* rings from VEN: a – inv. № 3328, grave 150; b – inv. № 2923, Grave 68, fragments 1 and 2; c – inv. №. I-2024 (E), grave 257, fragment 3; d – inv. No. 2404, grave 220

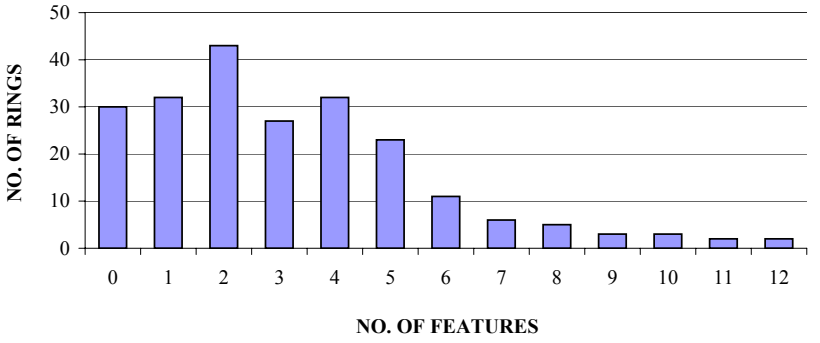


Fig. 12. Number of natural shell features

The revelation of natural features by incremental grinding of the shell's surface has produced a wide variety of natural decoration – many of them capable of producing striking visual effects. In the Varna I cemetery, there is a nearly normal distribution of the number of natural features revealed on the shell rings, with a mean of two and a secondary peak at four features but a very long tail, ranging from zero to 12 (fig. 12). This is one of the rare cases in which the Varna cemetery shows a less complex pattern than the Late Copper Age shell rings at Durankulak.

Given the extent of ring fragmentation, as well as the post-burial deposition of especially calcareous sediment on the shells' surface, it may be imagined that the statistics on natural features would have been dependent upon the completeness of the rings and the presence/absence of deposits. However, intensive investigation of these variables shows that neither the completeness index nor the extent of deposits have a major effect on the number of areas where natural features have been revealed. An evaluation of the frequency and intensity of deposit on pairs of rings in the same grave showed marked differences between the rings in almost every case, to such an extent that it raised the possibility that the deposit on one of a pair of rings had built up prior to final burial, in another place, while the other ring had not received such a deposit during its use-life.

An approach to the selection of natural features on shell rings could be termed the "biographical pathway". In this technique, the types of natural features listed above (table 1) are grouped into six classes of natural features: Notch, Hinge, Holes, Pitting, Lines and Colours. All 63 possible combinations of these six classes were listed and the actual combinations on each ring were described and counted (table 2). At Varna, a total

Table 2. *Spondylus* combinations of natural features from Varna I cemetery:
N – notch; HI – hingle; HO – holes; L – lines; P – pitting; R – colours

№	COMBO
1	N
2	N+HI
3	N+HO
4	N+P
5	N+L
6	N+R
7	HI
8	HI+HO
9	HI+P
10	HI+L
11	HI+R
12	HO
13	HO+P
14	HO+L
15	HO+R
16	P
17	P+L
18	P+R
19	L
20	L+R
21	R

№	COMBO
22	N+HI+HO
23	N+HI+P
24	N+HI+L
25	N+HI+R
26	N+HO+P
27	N+HO+L
28	N+HO+R
29	N+P+L
30	N+P+R
31	N+L+R
32	HI+HO+P
33	HI+HO+L
34	HI+HO+R
35	HI+P+L
36	HI+P+R
37	HI+L+R
38	HO+P+L
39	HO+P+R
40	HO+L+R
41	P+L+R
42	N+HI+HO+P

№	COMBO
43	N+HI+HO+L
44	N+HI+HO+R
45	N+HI+P+L
46	N+HI+P+R
47	N+HI+L+R
48	N+HO+P+L
49	N+HO+P+R
50	N+HO+L+R
51	N+P+L+R
52	HI+HO+P+L
53	HI+HO+P+R
54	HI+HO+L+R
55	O+P+L+R
56	N+HI+HO+P+L
57	N+HI+HO+P+R
58	N+HI+HO+L+R
59	N+HI+P+L+R
60	N+HO+P+L+R
61	HI+HO+P+L+R
62	N+HI+HO+P+L+R
63	no features

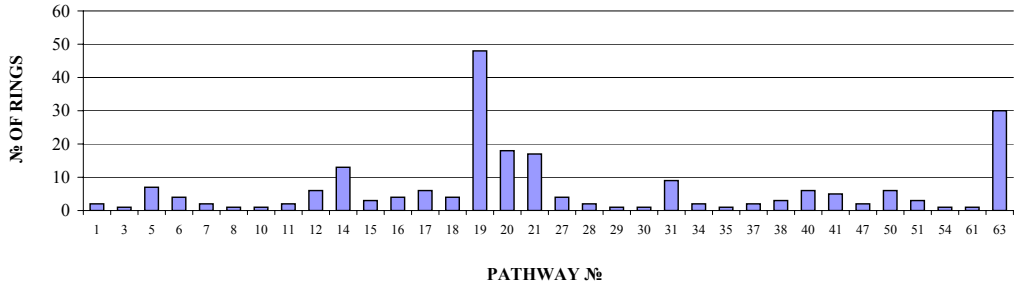


Fig. 13. Possible combinations of natural shell features

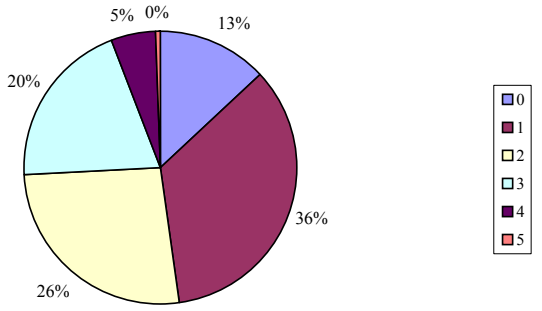


Fig. 14. Number of stages in natural features pathway

of 34 combinations of natural feature classes was identified (fig. 13). There was a consistent preference for certain biographical pathways – Pathway 19 (lines only) occurred most frequently at Varna, with Pathway 20 (lines + colour) a second choice (fig. 13). The frequency of those shell rings without any natural feature classes peaks at Varna I, with far fewer rings with two feature classes. The sole location from all studied collections with rings with four feature classes is Varna I (fig. 14). The selection of a shell ring without any natural features indicates the value attributed to a pure white lustrous surface, as close to a homogenous finish as can be found in shell rings. Conversely, those rings with four or five natural feature classes signify the value given to markedly differentiated shells with a high level of individuality. When it comes to the full range of pre-depositional features, there is a lower frequency in the range of classes used at Varna when compared to Durankulak. This would suggest that the same, rather narrow range of natural "motifs" was being revealed more frequently for the average Varna I shell ring than at Durankulak.

Fragmentation: the re-fitting exercises

An important practice affecting many shell biographies was fragmentation. Although A. Tsuneki argued that the fragmentation of the Late Neolithic Dimini shell rings was the result of manufacturing mishaps[29], no evidence was adduced in support of this interpretation, leading to Halstead's strong critique[30]. Instead, it is more probable that fragmentary shell rings occur in Neolithic and Copper Age graves because the rings have been broken, either at the graveside or somewhere else. The re-fitting exercises for the Durankulak and Varna I cemeteries gives an indication of the extent of this social practice.

There is no better way of recognising the steady increase in the significance of fragment enchainment through the Black Sea Neolithic and Eneolithic than by examining the regular increase in the percentage of fragmentary shell rings with time at Durankulak, with a still greater increase in incomplete rings at Varna I, where fully two-thirds of all rings were deposited broken (fig. 3c). This quantum leap in fragmentation at the Varna I cemetery shows the differences in local social practices between cemeteries in the Late Copper Age.

The main result of the re-fitting exercise at both the Durankulak and Varna I cemeteries is that not a single example has been found of ring fragments re-fitting with other fragments of the same ring from another grave. While this would appear to be a negative result, it is nonetheless intriguing that the missing fragments of so many shell rings should be in circulation (or deposited elsewhere) in the world of the living at the same time as their partner fragments were deposited in the world of the dead.

As with the Dolnoslav figurines[31], at least two scenarios can be envisaged to account for this very incomplete distribution of ring fragments. The first is that complete shell rings in circulation in settlements were deliberately fragmented in the settlement, with one fragment deposited in a grave and another taken as a token of the link between the newly-dead and the living, kept in the settlement or exchanged with another settlement. The second scenario represents the inverse, namely that the complete shell ring was present at the graveside and that one fragment was deposited in the grave, while the mourners took away other fragments of the same ring. In view of the different completeness indices for the shell rings at Varna I and Durankulak, it seems likely that whole shell rings were more commonly brought to the Varna-period Durankulak than to the Varna I cemetery, where only 75 complete rings are known out of a total of 219. It is perhaps a indication of the supra-regional contributions to the buried population at Varna I that shell ring fragments played such an important role in mortuary deposition; shell rings may have been broken at a wider range of settlements, with their fragments buried at Varna I as a symbol of the links to the home settlement.

Summary and conclusions

In summary, the biography of a shell ring subsequent to the collection of the living shell by a specific diver is defined by a series of structured and consecutive choices by the shell ring-maker. The first choice is which valve to use – the right valve for massive rings or the left valve for more slender, more symmetrical rings. The cumulative effect of grinding and perforation is the production of what is likely to be an unique ring with its own specific range of natural features and production features. It is difficult to be sure of the aesthetic qualities valued most by prehistoric persons but combinations of colour, lustre, patterning and shape are the most probable qualities that a ring-maker would have considered.

In the Durankulak and Varna studies, a total of 14 natural features and three production features have been identified. While there is no diachronic trend in the number of classes of pre-depositional features found on the rings, there is a clear increase in the number of areas with such features on a given ring, including a peak in the Varna I shell rings. This suggests increasing value is given to shell rings with a diversity of markings – a point borne out in the analysis of biographical pathways. Here, the emphasis is on diversity rather than on standardisation, with the peak in diversity recorded for the Varna I rings (34 pathways) in comparison to 20 pathways for all of the periods represented at Durankulak.

Any "experience" encountered by the shell ring would have added to its biography through the overlaying of new features on the natural and production markings. Four general use-life features have been recognised: wear, burning, flaking and possibly the accretion of a deposit. The fifth and arguably the most important use-life transformation concerns fragmentation itself. Several diachronic trends have been identified here – each with a quantum leap at the Varna I cemetery: first, the increase in the percentage of fragmented rings deposited (as a percentage of the total ring assemblage); secondly, the decreased size of the completeness index of the broken rings; and thirdly, the increase in the number of fragments re-fitted to make still-incomplete rings. These trends, considered as a whole, indicate the increasing significance of deliberate fragmentation in the Late Copper Age and, in particular, at Varna I.

That said, there was a total absence – at both Durankulak and Varna I – of re-fits between shell ring fragments from the same ring but deposited in different graves. This indicates that, at the time of burial, the missing fragment(s) were either still in circulation in the domain of the living or else deposited elsewhere. Enchainment between the domains of the living and the dead is clearly attested in all phases at Durankulak and in a complex manner at Varna I.

The overall conclusions of this study of the Varna I shell rings and ring fragments are twofold. First, enchained relations using fragments was a fundamental social practice linking the domain of the living and the domain of the dead. Keeping a fragment of

a shell ring whose other parts were buried in a grave in the Varna I cemetery created an heirloom that embodied personal as well as household and kin-group links to the newly dead. Secondly, fragment dispersion across the landscape is implied by the shell ring fragments missing from so many graves. The documentation of fragment dispersion to Late Copper Age settlements on the shores of the Varna Lakes awaits systematic excavation. While it is difficult to prove fragment dispersion further afield, it is striking that the vast majority of *Spondylus* shell rings found in the North Pontic zone in an exchange network closely related to the Varna phenomenon[32] have been found in a fragmentary state. This especially true of the shell ring finds from the Cărbuna hoard[33] but also true of finds further to the East, such as Lysaya Gora[34]. It is also true of all of the *Spondylus* finds known from the Cucuteni group and indeed for the majority of finds from the Tripolye group. We should perhaps be more open than in the past to the possibility not only of the exchange of sherds[35] but also to the exchange of fragmentary shell rings, as a way of linking distant people, places and things in a prestige goods exchange network.

Acknowledgements

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"ЖИТЕЙСКАТА ИСТОРИЯ" НА ГРИВНИТЕ ОТ *SPONDYLUS*, ОТКРИТИ В ЕНЕОЛИТНИЯ НЕКРОПОЛ ВАРНА I (СЕВЕРОИЗТОЧНА БЪЛГАРИЯ): ПРЕОБРАЗУВАНЕ, ПРЕОТКРИВАНЕ, ФРАГМЕНТАЦИЯ И ДЕПОНИРАНЕ

ДЖОН ЧАПМАН (ДЪРАМ), БИСЕРКА ГАЙДАРСКА (ДЪРАМ),
ВЛАДИМИР СЛАВЧЕВ (ВАРНА)

Настоящата статия разглежда гривните от черупките на мидите *Spondylus* и *Glycymeris*, депонирани в енеолитния некропол Варна I и има три цели: 1) изследване на "житейската история" на гривните с помощта на châine opératoire, с оглед доказване на потенциала на този подход за социалните интерпретации на артефактите; 2) осъвременяване на резултатите от предишни изследвания на гривните от *Spondylus/Glycymeris* в светлината на информацията, придобита от полевата документация на разкопките; 3) представяне на "биографията" на гривните, както и резултатите от опитите да се намерят "пасващи" фрагменти. Тези три различни посоки на изследването са обединени в обобщаващи заключения свързващи гривните с населението, погребано в некропола, както и с по-широкия социален контекст на Варна I.

DUNKLE ÜBERGANGSZEIT? WANDEL UND KONTINUITÄT IM (END)CHALKOLITHIKUM AN DER UNTEREN DONAU

MARIYA IVANOVA (HEIDELBERG)

Das ausgehende 5. Jt. v. Chr. hat wie keine andere Periode in der frühen Vorgeschichte des Balkans gewagte Theorien, Spekulationen und sich in Axiome verwandelnde Modelle erzeugt. Mit der Erweiterung der archäologischen Datenbasis und der Erschließung neuer Informationen aus Nachbarwissenschaften wie der Archäobiologie und Archäometrie wird die seit den 1980er Jahren geführte Diskussion über eine "Übergangszeit" vom Chalkolithikum zur Frühen Bronzezeit im östlichen Balkan zunehmend unüberschaubarer. Eine zusammenfassende Untersuchung zu dieser Problematik existiert bislang nicht. In diesem Beitrag wird ein Versuch unternommen, archäologische Fakten von Interpretation (oder Fiktion) zu trennen und die bisherigen Modelle im Lichte der aktuellen Erkenntnisse auf den Prüfstand zu stellen. Dabei wird den offenen Fragen und den mutmaßlichen Forschungslücken besondere Beachtung geschenkt[1].

Zur Genese der Vorstellung einer "Übergangszeit"

Die Vorstellung eines Einschnitts am Ende des späten Chalkolithikums ist ohne einen Bezug zum Modell der "Steppeninvasion" nicht zu verstehen. Die Diskussion über ein gewaltsames Eindringen aus den Steppengebieten nördlich des Schwarzen Meeres in das Territorium der südosteuropäischen Bauernkulturen am Übergang zum 4. Jt. v. Chr. wurde durch Funde von vermeintlich "fremden Elementen" ausgelöst, beispielsweise durch lange Silexklingen, die Ockerbestreuung des Körpers als Teil der Bestattungsrituale oder die Zepter mit Tierkopfform. Der erste Grabkomplex mit Okkerstreuung und Tierkopfzepter an der Unteren Donau kam schon 1939 bei Casimcea in der rumänischen Dobrudscha ans Tageslicht[2]. Mehrere ähnliche Befunde zwischen dem Donau-Delta und dem Dnjestr wurden allerdings erst in den 1960er und 1970er Jahren bekannt[3]. Obwohl die Interpretation solcher Funde im Kontext einer Auswanderung aus dem nordpontischen Gebiet in den 1950er Jahren in den Arbeiten von M. Garašanin aufkommt, gelang ihre Integration in ein umfassendes historisches Modell erst M. Gimbutas.[4] Sie fügte auch den Aspekt einer gewaltsamen Invasion hinzu und verband sie mit dem Untergang der traditionellen Bauernkulturen "Alteuropas".

Zu ihrem Modell gehörte auch die These, dass sich im nordpontischen Raum schon im Laufe des späten 5. Jt. v. Chr. eine kriegerische nomadische Lebensweise herausgebildet habe. Die Forschung in der Südukraine der 1960–70er Jahre wurde von einer

ähnlichen Interpretation der archäologischen Fundbasis dominiert – also dem Bild einer mobilen Viehzüchterwirtschaft mit Pferdezucht und gewaltigen Völkerbewegungen[5]. So erschien eine "Nomadeninvasion" in Südosteuropa selbstverständlich und wurde angeblich durch die Befunde in der Steppe unterstützt[6]. Die Tatsache, dass es sich bei der Rekonstruktion kriegerischer Reiternomaden-Stämme in dieser frühen Epoche möglicherweise um eine Rückprojektion späterer Ereignisse, also um einen Anachronismus handelte, spielte zu dieser Zeit keine Rolle[7].

Es dürfte kein Zufall sein, dass in diesem Zeitraum die Frage nach dem Übergang zwischen dem Chalkolithikum und der Bronzezeit südlich der Unteren Donau zur Duskussion gestellt wurde. Die Diskontinuität zwischen den Perioden Karanovo VI und Karanovo VII in Nordthrakien war schwierig zu übersehen, sowohl bei Keramikvergleichen als auch in den stratigraphischen Daten aus den Siedlungshügeln. Ihre Implikationen wurden jedoch lange ignoriert, da die Dauer der Unterbrechung schwierig abzuschätzen war[8]. Die ersten einschlägigen 14C-Daten demonstrierten allerdings, dass zwischen Spätchalkolithikum und Frühbronzezeit eine beträchtliche Zeitspanne liegt und brachten somit das Problem zum ersten Mal in den Vordergrund[9]. Die darauffolgenden Feldforschungen legten Befunde aus dieser Periode in Nordbulgarien frei[10]. Da in der bulgarischen Archäologie die Begriffe Kupferzeit[11] und Frühbronzezeit schon etabliert waren, und die zuerst gefundenen Materialien und Befunde dieser Zeit aus Todorovas Grabungen in NO-Bulgarien sich so deutlich von der Spätkupferzeit absetzten, erschien die Definition einer "Übergangsperiode" als der einzige Ausweg[12]. Die Besonderheiten des Materials schienen zunächst die Erwartung eines kulturellen Rückgangs zu bestätigen.

Die dominierenden Invasions-Theorien setzten eine Unterbrechung nach dem scheinbar plötzlichen Ende der spätkupferzeitlichen Kulturen voraus und der Befund einer "Übergangszeit" in Nordbulgarien passte gut zu dieser Annahme. In den 1980er Jahren wurde das ausgehende 5. Jt. v. Chr. ausschließlich in diesem Kontext betrachtet. Zur "Stärkung" der mangelhaften Indizien für feindliche Angriffe aus der Steppe wurden sogar Daten unterschiedlicher Zeitstellung zusammengetragen[13]. J. Bojadžiev fügte durch Auswertung der angehäuften 14C-Daten weitere Aspekte hinzu[14]. Die von ihm festgestellten früheren Werte für das Ende der Kupferzeit NO-Bulgariens und Thrakiens (um ca. 4100 v. Chr.) im Vergleich zu Westbulgarien interpretierte er als eine Ausbreitung der "Kollapserscheinungen" vom Osten nach Westen. Nach einer zerstörerischen Invasion aus dem nordpontischen Raum endeten also die im Osten gelegenen Siedlungen als erste und die Überlebenden flohen in die Bergregionen Süd- und Westbulgariens, wo sich dann die traditionelle kupferzeitliche Lebensweise länger hielt.

Von der Steppeninvasion zur Klimakatastrophe

Seit den 1980er Jahren erhielt die Frage nach dem Inhalt der nomadischen Lebens- und Wirtschaftsform bzw. nach ihrer Entstehung und ihren möglichen archäologischen Hinterlassenschaften verstärkte Aufmerksamkeit[15]. Die vollnomadische Lebensweise

im nordpontischen Raum basierte auf der Mobilität (alle wandern, nicht nur diejenigen, die sich um die Herde kümmern), einer spezialisierten Tierwirtschaft (Bildung von großen Herden, Milch- und Wollproduktion) und einer spezifischen Ernährung (mit tierischen Produkten – Milch und Blut). Außerdem ist dem Züchten und Reiten von Pferden eine besondere Bedeutung zuzusprechen. Diese Lebensweise entstand jedoch erst im 1. Jt. v. Chr., wahrscheinlich im Zusammenhang mit klimatischen Veränderungen[16]. Die Lebens- und Wirtschaftsweise der früheren Einwohner des nordpontischen Raums, insbesondere im 5. und 4. Jt. v. Chr., war in diesem Sinne nicht "nomadisch". Die Befunde demonstrieren, dass die nordpontischen Gruppen im 5. Jt. sesshaft waren und die ariden, offenen Steppenzonen nicht nutzten. Es scheint, dass sowohl der Anbau als auch das Sammeln von Pflanzen in den Flusstälern praktiziert wurde. Domestizierte Tiere – Schaf, Ziege und Rind – sind belegt, die Jagd und der Fischfang waren jedoch noch von großer Bedeutung[17]. Was die Pferdedomestikation betrifft, wurden nach den Untersuchungen von M. Levine Pferde ursprünglich als Fleischlieferant gejagt und erst viel später gezüchtet. Das Reiten mit einem entwickelten Pferdegeschirr ist für diese Zeit noch nicht belegt[18].

Es ist weiterhin zu betonen, dass der Nomadismus nicht zwangsläufig mit einem kriegerischen Verhalten verbunden sein muss. Der militärische Vorteil der Nomaden besteht in der zu Pferd kämpfenden Truppe. Jedoch sind die Pferdezucht und das Pferdereiten nicht mit einem kriegerischen Einsatz des Pferdes gleichzusetzen. Er wird erst mit dem entwickelten Pferdegeschirr möglich, also in der Eisenzeit[19]. Die Rückprojektion der nomadischen Kampfesweise auf frühere Epochen, für die es keine Funde von entwickeltem Pferdegeschirr gibt, ist daher nicht berechtigt[20].

An nächster Stelle fand eine genauere Untersuchung der archäologischen Datenbasis in der Steppe im 5. Jt. v. Chr. statt[21]. Die materielle Kultur des späten 5. Jt. ist vorwiegend aus Grabbefunden bekannt[22]. Es handelt sich um spezifische Grabkomplexe – Einzelbestattungen in Gruben, üblicherweise Flachgräber, die Toten liegen in Rückenlage mit angezogenen Beinen und werden mit Ocker bestreut[23]. Charakteristische Beigaben sind hochwertige Silexgeräte (retuschierte Spitzen, lange Klingen, Beile), Kupferschmuck (spiralförmige Armringe, Perlen), Pektorale aus Wildschweinhauern und scheibenförmige Perlen aus *Unio*-Muscheln[24]. Y. Rassamakin schlug einen kulturellen Kontext für diese Befunde im Rahmen der ostbalkanischen Bauernkulturen Cucuteni A, Gumelnița und Varna vor[25]. Er zeigte ferner, dass nach dem Ende dieser letzten Kulturen und der Unterbrechung der Kontakte im frühen 4. Jt. v. Chr. nur noch eine verarmte Variante der beschriebenen Bestattungstradition anzutreffen ist.

Weiterhin liegen seit kurzem ausführlichere Untersuchungen zur Chronologie der "Steppengräber" in unmittelbarer Nähe zu den Siedlungen der Ackerbauern zwischen der Donau und Dnjestr vor. Zwei Befunde sind durch die Keramik datierbar – das Grab von Căinari mit einem Tripolie B1-Gefäß und Grab 2 aus Giurgiuleşti mit der Beigabe einer Gumelnița A2-Schüssel[26]. Es ist außerdem eine 14C-Datierung bekannt, die das Grab von Căinari in den Zeitraum zwischen 4500 und 4300 v. Chr. datiert (s. Anhang). Die

spätesten Metallobjekte – eine Axt vom Typ *Şiria* in Grab 1 von Fălciu und das Flachbeil des Typ *Kamenar* in Reka Devnja – geben eine Idee für die obere chronologische Grenze dieser Komplexe[27]. Somit ist eine Eingrenzung des Zeitraums vom Auftreten der "Steppengräber" an der Unteren Donau möglich – von Präcucuteni III–Tripolie A3 bis Cucuteni AB1–Tripolie B1/B2[28].

In der Diskussion über eine Einwanderung aus dem nordpontischen Raum bzw. einer Übergangszeit nimmt zweifellos die Cernavodă I-Kultur eine Schlüsselposition ein. Zur Klärung ihrer Chronologie trug die zusammenfassende Studie von I. Manzura wesentlich bei. Er konnte zeigen, dass die stratigraphischen und typologischen Daten für eine Synchronisierung von Cernavodă I mit Cucuteni A4 sehr problematisch sind und dass die sog. "*pre-corded"* oder Ia-Stufe (nach P. Haşotti, vermeintlich Cucuteni A3/A4-zeitlich) sehr zweifelhaft belegt ist[29]. Somit erscheint es überzeugend, dass der Beginn von Cernavodă I mit Cucuteni AB zusammenfällt. Zwei chronologische Phasen sind zu unterscheiden: Die frühe (z.B. in Cernavodă "Dealul Sofia", Greaca, Chirnogi, Căscioarele) datiert in die Zeit von Cucuteni AB2; die Synchronisierung der späten Phase mit Cucuteni B ist durch Importe in Oltenița-Renie I, Râmnicelu und Pietroasele gesichert[30]. Die Cernavodă I-Kulturerscheinung basiert nach den Ergebnissen von I. Manzura auf lokalen Traditionen der vorangehenden Kulturen Cucuteni A und Gumelnița und ist nicht als Folge der Niederlassung (halb)nomadischer Gruppen aus den Steppen zu betrachten[31].

Mit diesen neuen Erkenntnissen verlor die Invasionstheorie letztendlich ihre bestimmende Rolle in der Forschung. Das "Zerstörungsmodell" folgte ihr aber überraschenderweise nicht. Die vermeintliche nomadische Einwanderung als Ursache wurde durch eine klimatische Katastrophe ersetzt und die Vorstellung eines dramatischen Endes der spätkupferzeitlichen Siedlungen im östlichen Balkan lebte unverändert fort. Sie wurde vor allem in den Arbeiten von H. Todorova konsequent vertreten und in ein globales umweltdeterministisches Modell eingebaut. Ein Temperaturanstieg brachte demnach Dürren, die stufenweise von Süden nach Norden fortschritten und zu lang andauernden Zäsuren in der archäologischen Aufzeichnung führten[32]. Die Besiedlung im Süden der Balkanhalbinsel (Nordgriechenland) brach um ca. 4500 v. Chr. zusammen, später um 4100 v. Chr. diejenige von Nordthrakien bis zur nordpontischen Steppe[33].

Der postglaziale Temperaturanstieg ist natürlich nicht zu bezweifeln, jedoch ist Todorovas "Stufenmodell des Zusammenbruchs" sowohl archäologisch als auch paläoklimatisch nicht haltbar[34]. Es ist an erster Stelle zu betonen, dass die klimatische Rekonstruktion anhand von *proxy*-Daten kein direkter Prozess ist und ihre Ergebnisse stets mit einer gewissen Unsicherheit behaftet sind. Auf dem Niveau des globalen Klimas ist ab 3500 cal. BC eine fortschreitende Abkühlung und Austrocknung nach einem "klimatischen Optimum" (7000–3500 cal. BC) zu verzeichnen[35]. Diese langfristige Tendenz wurde durch kürzere Schwankungen zwischen feucht und trocken mehrmals unterbrochen – das Klima verschlechterte sich abrupt und kehrte nach wenigen Jahrhunderten

zum früheren Stand zurück. Solche "*abrupt arid events*" wurden um ca. 10000, 6200 und 3200 cal. BC festgestellt[36]. Andererseits sind bisher keine lang- oder kurzfristigen Ereignisse in der globalen Klimaentwicklung bekannt, die in das späte 5. Jt. v. Chr. datieren.

Die palinologischen Untersuchungen zur Vegetationsgeschichte in den Steppen- und Waldsteppengebieten der Südukraine und Moldawiens zeigen eine entsprechende Entwicklung auf lokalem Niveau[37]. In der ersten Hälfte des *Atlantikums* (6300–4800 cal. BC) waren die Temperaturen in Juli und Januar um 2°C wärmer als heute und der Jahresniederschlag war ähnlich dem heutigen. Das Klima wurde milder und erreichte optimale Bedingungen ab ca. 4800 cal. BC. Im Juli war die Temperatur um 2°C niedriger und in Januar um 1°C höher, der durchschnittliche Jahresniederschlag lag um 120–150 mm höher als heute. Es handelt sich um die Zeit der maximalen Ausbreitung der Wälder in den Tälern von Dnjepr und südlichem Bug in der Steppenzone. Darauf folgte eine klimatische Verschlechterung ab ca. 3200 cal. BC – das Klima wurde kälter und der Niederschlag lag um ca. 50 mm niedriger als heute. Die Steppenzone wurde in dieser Periode arider und dehnte sich aus[38]. Bisher sind andererseits keine schlüssigen Indizien für eine katastrophale klimatische Schwankung am Übergang zum 4. Jt. in diesem geographischen Raum bekannt[39].

Nicht sehr verschieden davon dürfte die Situation in den unmittelbar nach Süden anschließenden Gebieten Nordostbulgariens gewesen sein. Der Verlauf der klimatischen Veränderungen im Holozän konnte durch die Analyse der Pollenprofile aus Durankulak nicht im Detail geklärt werden, sie scheinen allerdings die Hypothese eines schnellen Klimawandels mit katastrophalen Auswirkungen bisher nicht zu bestätigen[40]. Nach den Ergebnissen von E. Bozhilova und S. Tonkov für das Profil Durankulak-2 haben sich die klimatischen Bedingungen in der Periode nach 4200 v. Chr. wohl verbessert, wie die Zunahme von Baum-Pollen bzw. der Übergang von Steppen- zu Waldsteppenvegetation anzeigt (Zone D-2). Die Forscher stellten ferner eine gleichzeitige Abnahme der Pollen von Anthropophyten fest, wohl weil die Siedlungskammer in dieser Zeit verlassen war[41]. Ähnliche Beobachtungen wurden für den Fundplatz Sozopol (an der südwestlichen Schwarzmeerküste) gemacht – also günstige Klimabedingungen im frühen 4. Jt. v. Chr., jedoch keine Spuren anthropogener Einwirkung auf die Vegetation[42].

Zusammenfassend ist festzuhalten, dass der von H. Todorova dargestellten Tendenz in der klimatischen Entwicklung – hohe Temperaturen im späten 5. und frühen 4. Jt. v. Chr. und eine Milderung erst ab ca. 3500 v. Chr. – im Prinzip zuzustimmen ist[43]. Die palinologischen Untersuchungen zeigen allerdings, dass der Anstieg der Wintertemperaturen mit niedrigeren Sommertemperaturen und einem höheren durchschnittlichen Jahresniederschlag verknüpft war, der die Ausbreitung von Wäldern begünstigte. Eine Umweltkatastrophe mit Dürren, Hungersnöten und einem Zusammenbruch der Besiedlung im ausgehenden 5. Jt. erscheint vor diesem Hintergrund überzogen. Wenn die Hypothesen einer nomadischen Invasion oder einer länger andauernden klimati-

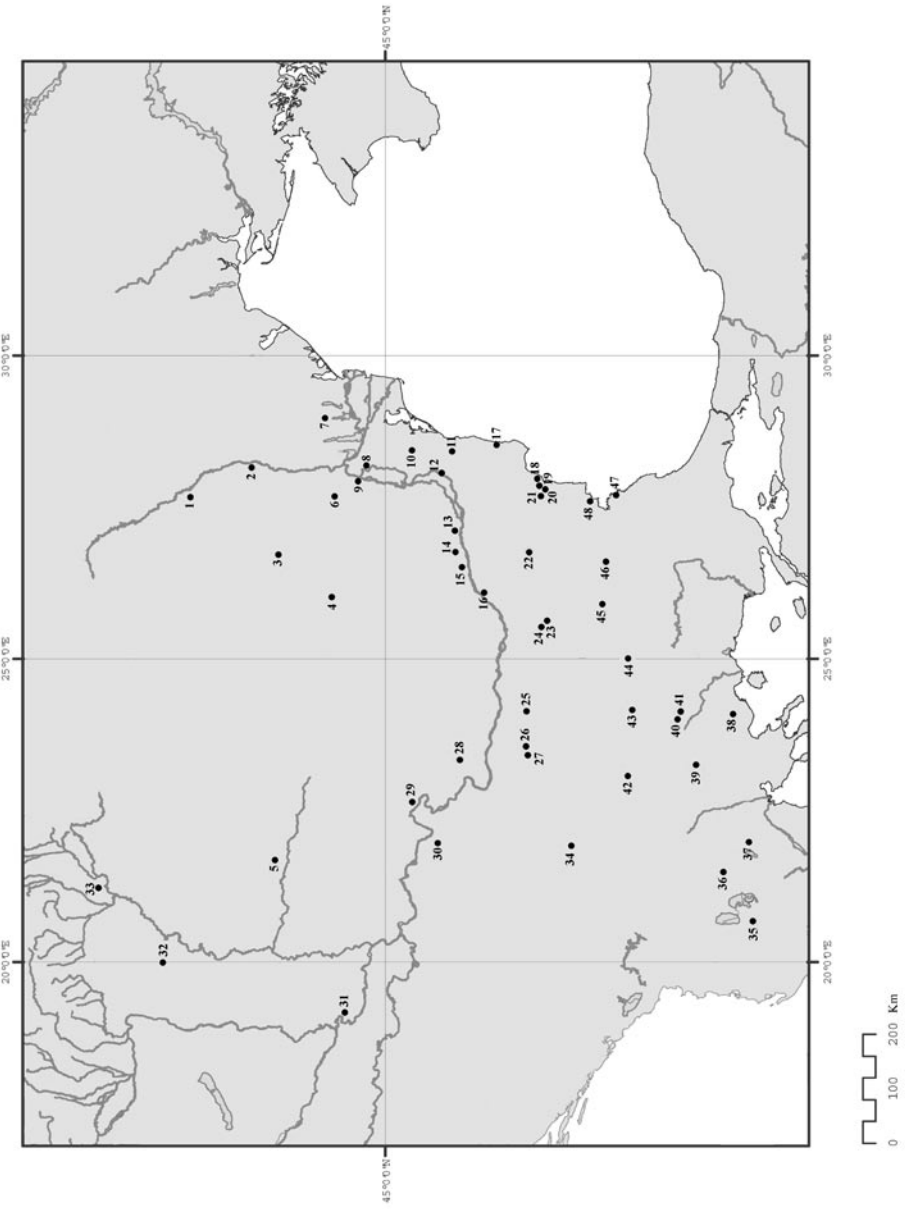

Abb. 1 Karte der wichtigsten im Text erwähnten Fundorte (ca. 4300–3600 v. Chr.)

schen Katastrophe sich bisher nicht sicher bestätigen lassen, bleibt Raum für eine alternative Rekonstruktion der Ereignisse am Übergang zwischen Chalkolithikum und Frühbronzezeit.

Fundplätze und Chronologie der Periode ca. 4300–3600 v. Chr.

Das Ende der Varna-Kultur. Ein grundlegendes Problem der "Übergangszeit" scheint die Unterbrechung der archäologischen Abfolge in der Küstenzone Nordostbulgariens zu sein, nicht zuletzt weil es sich um das konkurrenzlose kulturelle Zentrum des östlichen Balkans handelt. Was wissen wir jedoch genau über die späte Varna-Kultur? Durankulak-Insel ist bislang der einzige weitgehend untersuchte und dokumentierte Siedlungsplatz, wo auch die ganze Entwicklung der Varna-Kultur vertreten ist, bzw. auf dessen Stratigraphie eine interne Chronologie der Varna-Kultur aufgebaut werden könnte. Er blieb bislang jedoch unpubliziert[44]. Die von der Ausgräberin H. Todorova definierten drei Phasen der Varna-Kultur bleiben deswegen bisher unklar und unüberprüfbar[45]. Zur Phase III gehören nach H. Todorova außer Schicht Durankulak IVb und III und ein Teil der Durankulak-Gräber auch die folgenden Fundplätze: Zwei Hausbefunde kommen aus der Siedlung Devnja am Ufer der ehemaligen Trustikovsko-See, die dazugehörige Nekropole wurde teilweise freigelegt[46]; dazu sind auch die etwa 300 untersuchten Gräber der Nekropole Varna I zu erwähnen[47]; unstratifizierte Funde kommen ferner aus den Siedlungen unter dem heutigen Wasserspiegel der Varna- und Beloslav-Seen[48].

Es handelt sich um eine Kulturerscheinung in der Küstenzone der Dobrudscha. Die Siedlungen sind relativ klein, wahrscheinlich langlebig und die Nekropolen sind birituell angelegt (Frauen als Hocker, Männer als Rückenstrecker), mit teilweise reich ausgestatteten Gräbern[49]. Spezifische Formen von Kupfergeräten sowie zahlreiche Funde von Kupfer-, Gold- und Muschelschmuck unterscheiden die Grabkomplexe in der Küstenzone von denjenigen des Hinterlands. Für die Keramik sind schwarzpolierte Gefäße mit negativ eingeschnittenen und inkrustierten Motiven kennzeichnend. Die Siedlungen in der Küstenzone weisen weitreichende Kontakte auf – importiert werden Silex aus der Region von Razgrad, Kupfer aus Nordthrakien, Marmor und Karneol wahrscheinlich aus Südbulgarien sowie ägäischer Obsidian. In manchen Gräbern finden sich aufwändig gearbeitete Schmuckstücke aus Gold und steinerne Zepter mit Goldbeschlägen, die wohl als Machtsymbole und Statusabzeichen dienten[50].

Wie ist das Ende der Varna-Kultur zu datieren? Relativchronologisch kann die Frage durch einen Vergleich mit den Nachbarkulturen Cucuteni und Gumelnița geklärt werden, für die mehrere stratigraphische Daten und eine bessere interne Chronologie vorliegen. Bisher sind keine Cucuteni A-Tripolie B1-Importe aus Varna-Siedlungen in Bulgarien bekannt[51]. H. Todorova synchronisiert aufgrund der Varna-Importe in Gumelnița B1-Siedlungen (z.B. in Golyamo Delčevo) die letzte Phase von Varna mit Gumelnița B1[52]. Andererseits liegen in Gumelnița B1 Importe von Cucuteni A3-Keramik vor[53]. Auf Grund dieser Beobachtungen wird geschlossen, dass Varna III bzw.

Tabelle 1. Relative Chronologie der Periode 4200–3600 v. Chr.

Cal. BC	Dnjestr-Karpaten	Muntenien	Süddobrudscha (Küste)	NO-Bulgarien	Westbulgarien	Nordthrakien und Rhodopen
3600	Cucuteni B-Tripolie C1	Cernavodă I-Spät (Oltenița-Renie I, Râmnicelu, Ulmeni, Pietroasele)	Cernavodă I-Spät (Ezerovo II, Durankulak Grab 448)	Cernavodă I-Spät (Ovčarovo Platoto, Pevets, Koprivets, Hotnitsa Vodopada)	Sălcuța IV (Galatin, Telish 4, Kolarovo II, Vaksevo s.v. 6)	"Sălcuța IV"? (Haramijska Dupka, Aj Bunar, Karasura?, Junatsite?)
3800	Cucuteni AB2-Tripolie B2	Cernavodă I-Früh (Dealul Sofia, Chirnogi)	?	? (Ivanovo, Gorski Trumbesh)	Krivodol IV (Rebărkovo)	Karanovo VI (Sozopol)
4000/3900	Cucuteni AB1-Tripolie B1/B2	Gumeniţa B1	"Varna IV"?	Gumelniţa B1	Krivodol IV	Karanovo VI
4200	Cucuteni A4-Tripolie B1	(Sultana, Gradiştea-Ulmilor)	(Kamenar, Reka Devnja)	(Tell Hotnitsa, Ruse)	(Telish 3, Kolarovo I, Vaksevo-Skaleto)	(Yunatsite, Bikovo, Starozagorski m.n., Kozareva m., Jagodina 1)

Gumelnița B1 vor Cucuteni A4 endeten. Ein weiterer Hinweis für das frühe Ende der Nekropolen Varna I und Durankulak ist das vollständige Fehlen von späten Metallformen, wie kreuzschneidigen Äxten.

Es gibt allerdings späte Metallfunde in diesem Gebiet, beispielsweise eine Axt vom Typ *Ariuşd* aus Kamenar (aus einem zerstörten Grab) sowie ein Flachbeil des Typ *Kamenar* aus dem Grab von Reka Devnja, die in die Zeit von Cucuteni A4 oder AB datieren sollen[54]. Es ist weiterhin möglich, dass auch Cernavodă I-Spät (Tripolie C1)-Materialien vorliegen. Nach P. Georgieva gehört ein Teil der zusammen als Cernavodă III-zeitlich publizierten Keramikfragmente aus der Siedlung Ezerovo II zu dieser Phase[55]. Cernavodă I-Keramik fand sich weiterhin im Grab 448 der Nekropole Durankulak, das nach der Ausgräberin H. Todorova "mit Vorbehalt in die Tripolie C1-Zeit datiert". Die frühesten gesicherten post-Varna-Befunde sind allerdings die Tripolie C2-zeitlichen Gräber in Durankulak[56]. Es bleibt somit bisher unklar, ob es eine Zäsur zwischen Varna und Cernavodă III gab und wie lange sie eventuell andauerte (s. Tabelle 1). Eine langandauernde, die Phasen Cucuteni A4, AB und B umfassende Lücke, erscheint jedoch unwahrscheinlich[57].

Die zwei absoluten Daten aus der Durankulak-Nekropole scheinen ihre relative Synchronisierung zu bestätigen – die untere Grenze liegt bei ca. 4250 cal. BC[58]. Weitere Daten der Varna III-Zeit mit ähnlichen Werten kommen von der Durankulak-Insel und aus Poveljanovo im Varnasee[59]. Die 14C-Werte aus Cucuteni A3-A4 liegen dagegen zwischen 4300 und 4100/4000 cal. BC, die Cucuteni AB-Daten sind noch später (s. Anhang). Solche Daten sind aus der Varna-Kultur bisher nicht bekannt, sie endete also wohl früher, während Cucuteni A3 um ca. 4300/4200 cal. BC[60].

Das nordwestpontische Gebiet. In den Steppengebieten entlang der Schwarzmeerküste zwischen dem Donaudelta und dem Nordkaukasus sind im späten 5. Jt. noch die reich ausgestatteten Gräber der Skelya-Kultur anzutreffen. Danach ist eine Zeit des "Rückgangs" zu verzeichnen – die Gräber westlich des Dnjeprs verschwanden, im Dnjeprgebiet, am Severski Donez und am unteren Don bestand eine spätere Gräbergruppe in der gleichen Tradition. Die materielle Kultur änderte sich jedoch wesentlich[61]. Ähnliche Tendenzen zeigt die Entwicklung im Karpaten-Dnjestr-Gebiet. Die Cucuteni A-Periode wird durch zahlreiche Siedlungen, eine Mehrzahl davon befestigt, charakterisiert. In den Phasen A2–A3 expandiert die Kultur nach Süden, wie dies durch die in dieser Zeit sehr häufigen Keramikimporte in Gumelnița-Siedlungen belegt ist[62]. Die Phase Cucuteni AB ist dagegen eine Zeit des Rückgangs der Siedlungszahlen und eines Rückzugs nach Norden[63]. Trotz der Veränderungen ist aber keine Zäsur zu beobachten.

Muntenien und Nordostbulgarien. Ähnlich scheint es in den nördlichen Gebieten der Gumelnița-Karanovo VI-Kultur zu sein – in Muntenien und der rumänischen Dobrudscha. Dort ist wohl ebenfalls keine Zäsur zu beobachten, da die Cernavodă I-Befunde chronologisch direkt an die späte Gumelnița (B1)-Stufe anschließen[64]. Auch in der Cernavodă I-Früh-Phase ist im Vergleich zu Gumelnița ein Rückgang der Sied-

lungszahlen zu erkennen. Die Situation südlich der Donau, in Nordostbulgarien, ist weniger klar. Obwohl die Mehrzahl der Fundplätze das Ende des 5. Jt. v. Chr. nicht erreicht, gibt es zur Zeit nur seltene Indizien für eine spätere Besiedlung, die den Übergang zum 4. Jt. v. Chr. überdauert[65]. In der obersten chalkolithischen Schicht von Tell Hotnitsa wurde beispielsweise muschelgemagerte Keramik angetroffen[66]. Material aus derselben Phase ist auch aus Tell Ruse bekannt[67]. Metallobjekte, die typologisch ins ausgehende 5.–frühe 4. Jt. v. Chr. datieren, kamen ebenfalls zutage, nämlich Zufallsfunde von Kupferäxten des Typ *Jászladány* aus Ivanovo und Gorski Trumbesh (Abb. 2: 2, 5)[68]. Auch hier ist ein starker Rückgang in den Siedlungszahlen zu verzeichnen. Darauf folgt die besser belegte späte Cernavodă I-Phase, wie in Ovčarovo Platoto, Pevets, Koprivets und Hotnitsa Vodopada[69].

Die thrakische Schwarzmeerküste. In der Küstenzone Nordthrakiens wurden zwei spätchalkolithische Phasen in den vor kurzem ausgegrabenen Fundplätzen Kozareva mogila bei Kableshkovo und Sozopol festgestellt. Die letzte Schicht von Kozareva mogila ist verbrannt und lieferte stratigraphisch geschlossene Komplexe. Es wurden außer den für die späteste Phase des thrakischen Chalkolithikums charakteristischen pastos bemalten Gefäßen (s. unten) auch Gefäßfragmente aus weißem Ton mit schwarzer Bemalung gefunden, die Importe aus dem Areal der Cucuteni AB-Kultur darstellen sollten. Ein weiterer Import ist das Gefäß aus muschelgemagerter Ware, das nach Form, Technologie und Verzierung zur Cucuteni C-Ware gehört[70]. Kozareva mogila datiert wohl ungefähr gleichzeitig mit den weiter unten erwähnten Siedlungshügeln Bikovo und Starozagorski mineralni bani in Ostthrakien sowie einer früheren Phase von Krivodol IV in Westbulgarien[71]. Zu einer etwas späteren Zeit gehört Sozopol – typologisch entspricht der Keramikkomplex den Funden in Rebărkovo bzw. dem Ende der Krivodol IV-Phase in Westbulgarien. In diesem Komplex sind bestimmte neue Gefäßformen und eine muschelgemagerte Ware, jedoch auch noch Graphitbemalung und pastose Bemalung anzutreffen[72]. Eine mit Sălcuța IV-Cernavodă I-Spät gleichzeitige Phase wurde in der Küstenzone Thrakiens bisher nicht identifiziert.

Nordthrakien. Gegen die traditionelle Meinung, dass die Karanovo VI-Periode in Thrakien nicht ins 4. Jt. hineinreicht, sprechen die vor kurzem von P. Georgieva vorgelegten Keramikfunde[73]. Sie finden ihre Parallelen in der Sălcuța III-Krivodol IV-Phase Westbulgariens und unterscheiden sich wesentlich von dieser traditionellen "Phase III" des thrakischen Spätchalkolithikums. Die Keramik aus der obersten chalkolithischen Schicht im Siedlungshügel Starozagorski mineralni bani gehört zu dieser Phase. Charakteristisch sind außer Graphitdekoration auch eine weiße und rote pastose Bemalung sowie bestimmte Henkel- und Gefäßformen[74]. Auch im Siedlungshügel Bikovo bei Sliven ist diese Phase wohl belegt[75]. In West-Thrakien wird die letzte chalkolithische Schicht von Junatsite von L. Nikolova mit dem späten Krivodol synchronisiert[76]. Ein Zufallsfund aus diesem Zeithorizont in Thrakien ist weiterhin eine Kupferaxt des *Typ Jászladány* aus Tell Kirilovo bei Stara Zagora (Abb. 2: 1)[77].

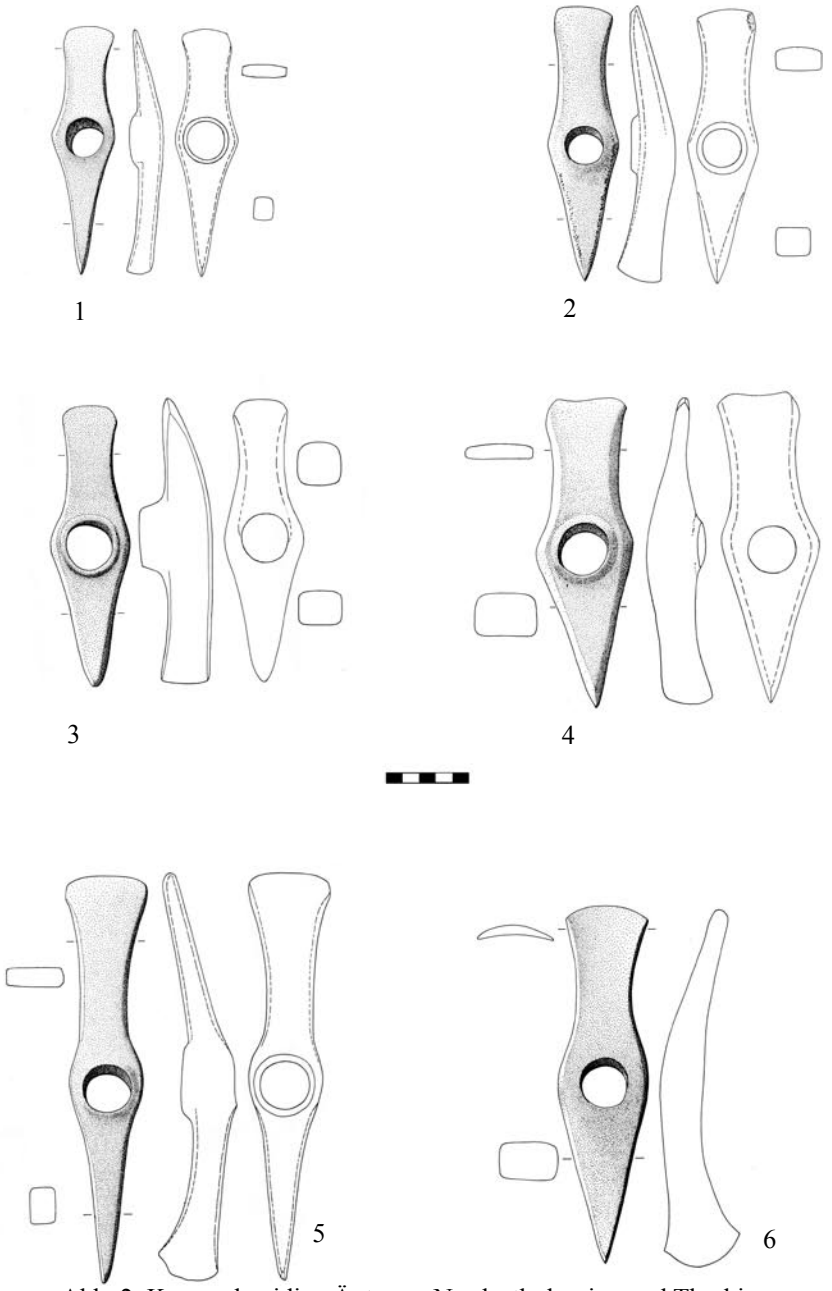

Abb. 2. Kreuzschneidige Äxte aus Nordostbulgarien und Thrakien:
Typ Ariuşd (6), Typ Jászladány (1, 2, 5) und Typ Tîrgu-Ocna (3, 4).
1 – Kirilovo; 2 – Ivanovo; 3 – Aj Bunar; 4 – Bez. Plovdiv; 5 – Gorski Trumbesh;
6 – Kamenar (nach **H. Todorova**. Die kupferzeitlichen Äxte und...). M 1:4

Der Siedlungshügel Kaleto (Karasura) bei Rupkite ist ein weiteres Beispiel – dort kommt rote und weiße pastose Bemalung sowie muschelgemagerte Keramik vor. Möglicherweise handelt es sich dabei sogar um eine noch spätere Phase, die synchron mit Sălcuța IV-Galatin datiert werden muss[78]. Außerdem sind Zufallsfunde von Metallgeräten aus der gleichen Zeit bekannt, beispielsweise die Äxte des Typ *Tîrgu Ocna* aus dem Bezirk Plovdiv und aus Aj-Bunar bei Stara Zagora (Abb. 2: 3–4)[79]. Der Übergang 5.–4. Jt. ist auch in den zentralen Rhodopen in den Höhlen Haramijska dupka und Jagodinska belegt[80]. Ein später Fund ist der Dolch des Typ *Sofievka* aus Haramijska Dupka 2[81].

Der Zentralbalkan. In Westbulgarien ist eine ähnliche Situation anzutreffen. Die Endphase von Krivodol mit pastos bemalter Verzierung in breiten Bändern, den frühesten muschelgemagerten Gefäßen und neuen Gefäßformen wurde beispielsweise in Kolarovo I, Rebărkovo, Vaksevo-Skaleto und Telish 3 festgestellt[82]. Darauf folgt eine spätere Phase, wie z.B in Kolarovo II, Vaksevo Studena Voda 6, Telish 4 und Galatin, die synchron mit Sălcuța IV und dem "Scheibenhenkelhorizont" ist[83].

Die Nordägäis. An letzter Stelle wird das ausgehende 5. Jt. v. Chr. in der Nordägäis und seine Anbindung an die Balkan-Chronologie angesprochen, da eine vermeintliche Zäsur ab 4500 v. Chr. in diesem Gebiet eine wichtige Rolle in H. Todorovas Modell einnimmt. Die publizierte Keramik aus Sitagroi III im ägäischen Ostmakedonien beinhaltet offensichtlich Elemente, die sowohl dem bulgarischen Frühchalkolithikum (Karanovo V–Maritsa) als auch Spätchalkolithikum (Karanovo VI) entsprechen. Sitagroi IIIa ist aufgrund der schwarz-auf-rot bemalten Verzierung ("*Galepsos-Ware*"), bestimmter graphitbemalter Muster und zahlreicher Formen mit dem frühen Chalkolithikum in Westbulgarien und der klassischen Dimini-Periode in Thessalien chronologisch gleichzusetzen[84]. Die Schichten Sitagroi IIIb und IIIc sind allerdings in die zweite Hälfte des 5. Jt. v. Chr. zu datieren. Dafür sprechen sowohl die Zunahme der dunkelbraun polierten und groben Gattungen als auch die negativen graphitbemalten Motive, manche Formen sowie ein Fragment mit Muschelabdruckverzierung[85]. Die fünf 14C-Daten aus Sitagroi III datieren die Siedlung in die Zeit zwischen 4800–4000 v. Chr.[86] Der bislang früheste Befund aus dem 4. Jt. im ägäischen Ostmakedonien ist die Schicht IV von Sitagroi, die nach den absoluten Daten und der Keramiktypologie in die Zeit von Ezero A–Baden zu setzen ist[87]. Mandalo im ägäischen Westmakedonien weist ähnlich wie Sitagroi eine Besiedlung aus dem späten 5. Jt. v. Chr. auf[88]. Danach folgte an diesem Ort eine Besiedlungsunterbrechung bis ca. 3000 v. Chr. Das Ende der chalkolithischen Besiedlung auf den Tells in Nordgriechenland erscheint somit gleichzeitig mit dieser in Bulgarien. Die Zäsur zwischen ca. 4000 und 3300 v. Chr. dürfte auf mangelnde Untersuchungen zurückgehen.

Es gibt ferner keinen Grund für die Annahme eines Hiatus zwischen den Perioden Dimini und Rachmani in Thessalien. In der Pevkakia Magula folgen sie unmittelbar aufeinander ohne Unterbrechung[89]. Die Galepsos-Ware, ein "Ringidol" aus Ton[90] und die charakteristische pastos bemalte Keramik verbinden Pevkakia mit dem ausgehenden

frühen und dem späten Chalkolithikum im zentralen Balkan. Es ist nicht ausgeschlossen, dass auch eine mit Sălcuța IV gleichzeitige Periode auf der Pevkakia Magula vertreten ist[91]. In Petromagula wurde andererseits mit Baden-Boleráz/Cernavodă III-Früh vergleichbares Material gefunden[92].

Charakterisierung der Veränderungen

Siedlungswesen. Es ist nicht zu übersehen, dass die sog. „Übergangszeit" in Gebieten wie Westbulgarien, wo die Besiedlung traditionell von kurzlebigen, verstreuten Siedlungsplätzen dominiert wurde, wesentlich besser belegt ist. Es stellt sich deshalb die Frage, ob die scheinbare Zäsur im beginnenden 4. Jt. v. Chr. in Thrakien und Nordostbulgarien nicht auf eine Konzentration der archäologischen Forschung auf die Siedlungshügel zurückzuführen wäre. So blieben dünnschichtige, "flache" chalkolithische Siedlungen praktisch unbeachtet, die "Übergangszeit" bestand aber gerade in einer Veränderung der Lebensweise zu mehr Mobilität. Der Prozess des Auflassens der Tells in Ostbulgarien beginnt sehr früh, am Ende der Phase Gumelnița A2[93]. Dies ist auch bei den ausgegrabenen Fundorten ersichtlich – viele enden mit einer Schicht der Phase A2, wenige besitzen eine Schicht vom Anfang der Phase B1 und die wenigsten eine Schicht aus dem Endchalkolithikum[94]. Das Bild eines allmählichen Siedlungswandels von konzentrierten Dörfern zu Streusiedlungen mit einer weniger substanziellen Architektur und Planung bietet sich somit an.

Wirtschaft. Es wird angenommen, dass dieser Siedlungswandel mit Veränderungen in der Landwirtschaft und der Ressourcenutzung einherging. L. Nikolova spricht beispielsweise von einem Übergang zur "*pastoral economy*"[95]. Damit ist wahrscheinlich eine Wirtschaftsform gemeint, die durch eine Verlagerung in der Viehzucht vom Rind zu kleinen Wiederkäuern, eine intensivere Milch- und Wollproduktion, größere Herden und weniger permanente, vom Potenzial der Weideflächen abhängige Siedlungen charakterisiert wird. Mit dieser Wirtschaftsform war außerdem eine zunehmende Bedeutung der bergigen Regionen verbunden, im Gegensatz zu der früher intensiveren Nutzung des Tieflands und der Flusstäler. Die archäozoologischen Daten zur Zusammensetzung und Größe der Herden, dem Schlachtalter und der Größenentwicklung aus dem frühen 4. Jt. v. Chr. sind allerdings bislang sehr spärlich und ergeben kein sinnvolles Entwicklungsmuster. Die Formen des Pflanzenanbaus (Spezies, landwirtschaftliche Geräte), der Speicherung (Pithoi, Speichergruben) oder der Nahrungszubereitung (Öfen, Herdstellen, Mahlsteine) bilden ebenfalls eine Forschungslücke[96]. Mehr Aufmerksamkeit erhielt nur die Frage nach der Pferdezüchtung. Wilde Pferde waren allerdings im Holozän auf dem Balkan noch einheimisch und sind mit einzelnen Knochen in Siedlungen aus dem 6.–4. Jt. v. Chr. als Jagdbeute belegt[97]. Es fehlen andererseits sichere Belege für domestizierte Pferde vor dem 3. Jt. v. Chr.[98]

Rohstoffversorgung und Tausch. Im späten 5. Jt. v. Chr. entwickelte sich ein Austauschsystem für Silex hoher Qualität. Dieser nur an wenigen Plätzen vorhandene Rohstoff

wurde in Schächten abgebaut, in Werkstätten vor Ort mit einer speziellen Technik in konische Kerne für die Herstellung von langen Klingen verarbeitet und dann durch Tauschnetze zu weit entfernten Gemeinschaften vermittelt[99]. Es überrascht, dass dieses komplexe Versorgungssystem den Rückgang der Besiedlung und der vermeintlichen Zäsur in Nordostbulgarien überdauerte. Die Untersuchungen der Silexartefakte aus Hotnitsa Vodopada demonstrierten nämlich, dass der hochwertige Silex aus der Region von Razgrad und Shumen dort immer noch etwa 9,5% des verwendeten Rohstoffs bildet. Ferner war auch in der Technologie und Typologie der Silexindustrie die chalkolithische Tradition noch klar erkennbar[100]. Der Tausch exotischer Rohstoffe dürfte ebenfalls in einem geringen Umfang bis zum zweiten Drittel des 4. Jt. überlebt haben. *Spondylus*-Schmuck wurde beispielsweise nicht nur im Grab von Reka Devnja, sondern auch in den etwas späteren Nekropolen von Brăiliţa und Ostrovul Corbului gefunden[101].

Bleiisotopenanalysen von Kupferartefakten aus dem 5. Jt. v. Chr. weisen auf eine Herkunft des Metalls vorwiegend aus Nordthrakien hin[102]. Die isotopische Zusammensetzung der untersuchten Objekte aus dem "Endchalkolithikum" (ca. 4100–3800 v. Chr.) ist ebenfalls relativ homogen, entspricht allerdings anderen Kupfervorkommen, etwa Majdanpek in Ostserbien[103]. Es wurde jedoch nicht eindeutig geklärt, ob es sich tatsächlich um eine Verlagerung der Erzgewinnung nach Nordwesten handelt oder die Ergebnisse durch die Auswahl der beprobten Funde beeinflusst wurden[104].

Metallurgische Technologie. Im Formenspektrum der Metallobjekte lässt sich ebenfalls die Verlagerung zu einem nordwestbalkanischen Metallurgiezentrum um ca. 4000 v. Chr. erkennen. Schwere Werkzeuge werden üblich, andererseits nimmt die Zahl der Prestige-Objekte und des Goldschmucks rasch ab[105]. Die Hammeräxte werden von neuen Formen der kreuzschneidigen Äxte fast vollständig verdrängt[106]. Der Ursprung der letzteren ist im nordwestlichen Balkan zu suchen, wo sie in größeren Serien auftreten[107]. Eine neue Metallform sind weiterhin die Dolche, die ab Cucuteni AB-Tripolie B2 aufkommen, jedoch als größere Exemplare und zahlreicher aus der Periode Cucuteni B–Tripolie C1 bekannt sind[108]. Trotz dieser Veränderungen ist ein Einschnitt im Formenspektrum nicht vor 3500 v. Chr. (Tripolie C2) festzustellen[109]. Eine besondere Beachtung verdient weiterhin der Beginn der Arsenlegierung von Kupfer, die sich schon während Tripolie C1-Cernavodă I erkennen lässt, jedoch erst in der zweiten Hälfte des 4. Jt. durchzusetzen vermag[110].

Keramiktechnologie. Als ein Charakteristikum der "Übergangszeit" wird die Keramik mit Magerung aus zerkleinerten Muschelschalen behandelt. Die früheste Muschelkeramik in den Bauernsiedlungen ist die sog. *Cucuteni C-Ware*, die in der Phase Cucuteni A3 in kleinen Mengen aufkommt[111]. Über die anfängliche Verbreitung dieser Ware bemerken I. Manzura und I. Palaguta, dass sie nur in Fundplätzen im südöstlichen Bereich der Cucuteni-Kultur an der Grenze zwischen Waldsteppe und Steppe zu finden ist[112]. In der folgenden Phase Cucuteni A4 ist sie dagegen auch im Norden und Nordwesten verbreitet[113]. Ware C findet sich auch in Gumelniţa-Siedlungen, z.B. in Taraclia und Carcaliu in der Phase Gumelniţa A2-B1[114].

Die Ähnlichkeit zwischen der Cucuteni C-Ware und der sog. Srednij-Stog II-Keramik am Dnjepr (oder "Skelya" nach Y. Rassamakin) wurde früh erkannt – nicht nur in der Muschelmagerung, sondern auch in den Formen und der Verzierung[115]. Wie I. Palaguta zeigte, ist das Herstellungsverfahren dieser Keramik ebenfalls völlig fremd für Cucuteni. Dies bedeutet, dass sie zumindest in der Anfangsphase ihrer Verbreitung (Cucuteni A3) unmöglich von Cucuteni-Töpfern hergestellt wurde. Die Ware C wurde entweder importiert oder vor Ort von Trägern der Skelya-Tradition gefertigt. Dabei ist jedoch kein Import aus dem Steppen-Region anzunehmen, sondern wir können vermuten, dass Gruppen mit dieser Keramiktradition in unmittelbarer Nähe zu Cucuteni gelebt haben.

Die Cucuteni C-Ware existierte weiter in den Phasen Cucuteni AB und B1, nun als Bestandteil der lokalen keramischen Tradition[116]. Folglich ist diese Keramikware in Cernavodă I nicht als Hinweis auf eine Steppeneinwanderung, sondern als weitere Entwicklung der früheren keramischen Tradition von Cucuteni anzusehen. In diesem Sinne ist auch die Ausbreitung der Muschel-Ware in der Cucuteni AB–B1-Zeit südlich der Donau zu verstehen[117].

Zusammenfassend ist festzuhalten, dass, obwohl ursprünglich eine "Steppenware", die muschelgemagerte Keramik schon früh in die keramische Tradition der Bauern aufgenommen wurde und ihre Ausbreitung im früher 4. Jt. nicht mit einer Steppenauswanderung bzw. mit dramatischen Ereignissen während einer "Übergangszeit" verbunden war. Diese Ware fügte sich gut in die allgemeine Tendenz zu gröberer Keramik ein. Wie L. Nikolova bemerkte, sind die vorwiegend gröberen, einfachen, unverzierten Waren des frühen 4. Jt. v. Chr. ein Indiz für den Wandel in der alltäglichen und sozialen Rolle der Gefäße. An Stelle der aufwändig geformten und prächtig verzierten Gefäße der "hochkupferzeitlichen" Gemeinschaften treten nun die schlichten Formen und Verzierungen einer Keramik schlechterer Qualität, die im Kontext einer weniger ortsfesten Lebensweise zu sehen ist[118].

Ritual. Die anthropomorphe Plastik der chalkolithischen Tradition verliert im 4. Jt. v. Chr. allmählich ihre Bedeutung. Frauenfigurinen sind in der Cernavodă I-Kultur immer noch anzutreffen (Abb. 3: 1–5)[119]. In der Schicht Telish 4 in Westbulgarien wurden jedoch keine solchen Funde gemacht[120]. Die Grabsitten im frühen 4. Jt. ähneln den chalkolithischen, ersichtlich in Gräberfeldern wie Brăiliţa oder Ostrovul Corbului[121]. Charakteristisch sind Hockerbestattungen in flachen Gräbern mit Beigaben mehrerer Gefäße, Kupferobjekte und Schmuck – in Brăiliţa auch aus *Spondylus*. In den küstennahen Gebieten der Dobrudscha und Bessarabiens sind dagegen Kurganbestattungen, Ocker und beinah fehlende Beigaben typisch[122].

Schlussfolgerungen

Die Veränderungen in der Wirtschaft, Lebensweise und materiellen Kultur beginnen im letzten Drittel des 5. Jt. v. Chr. und setzen sich schrittweise ohne einen klar erkennba-

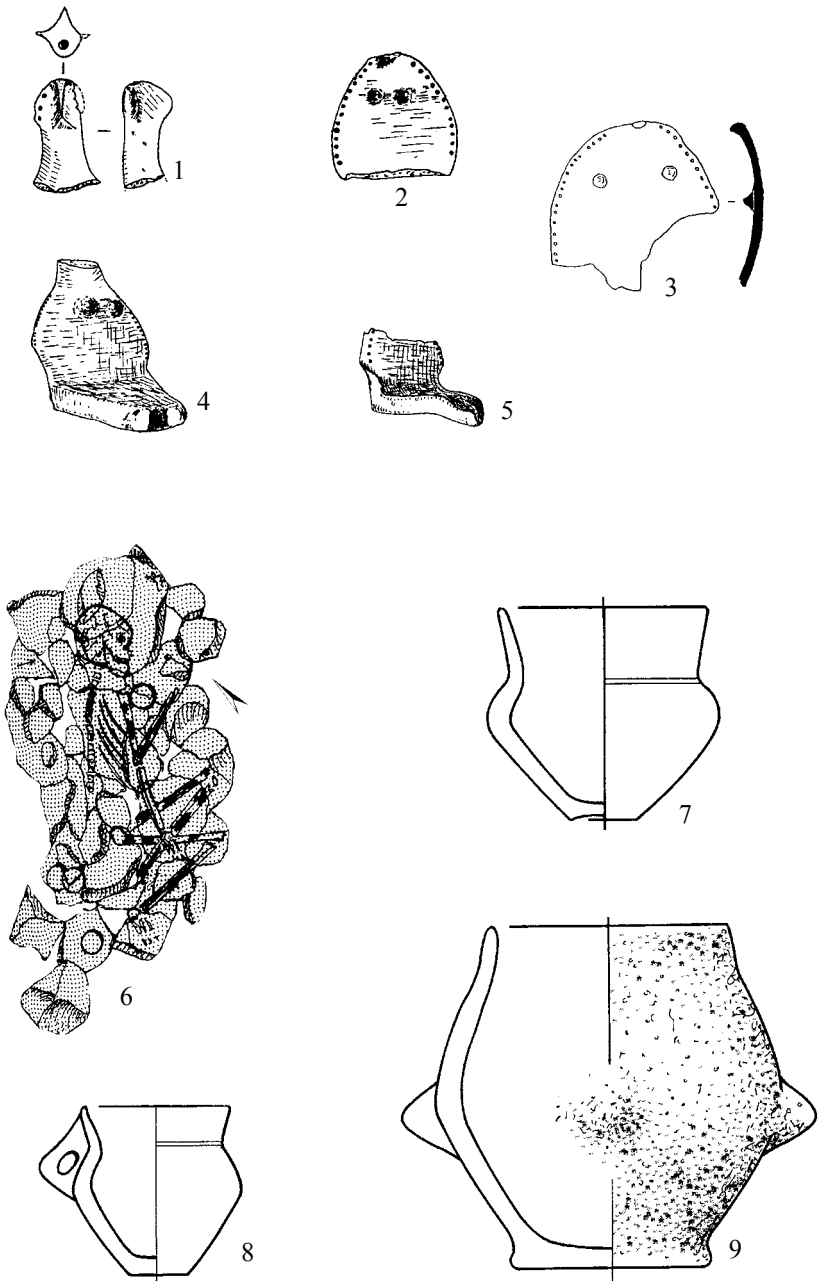

Abb. 3. Anthropomorphe Figurinen (1–5): 1 – Chirnogi, 2, 4–5 – Cernavodă "Dealul Sofia", 3 – Râmnicelu (nach **I. Manzura**. Cernavoda I culture...); Grab 448 von Durankulak (6–9) (nach **H. Todorova**. Durankulak, Bd. II..., Taf. 29). Verschiedene Maßstäbe

ren kulturellen Einschnitt fort. Es handelt sich dabei um einen langfristigen Prozess, der bisher schlecht zu verdeutlichen ist. Jedenfalls wurde bis zum heutigen Zeitpunkt keine überzeugende Erklärung angeboten, warum dieser Prozess einsetzt. Eine Teilung in zwei Perioden - eine mit "chalkolithischen Elementen" (bemalte Keramik, Graphit und pastose Farbe) und eine "gröbere", "protobronzezeitliche" Phase (Muschelmagerung, keine Bemalung, seltene Verzierung), erscheint in Anbetracht der Keramikentwicklung einleuchtend[123]. Tragen wir jedoch verschiedene Aspekte des Siedlungswesens, der Technologie und Wirtschaft zusammen, ist diese säuberliche Trennung nicht mehr zu erkennen. Die ersten Anzeichen des Wandels treten mit dem Auflassen zahlreicher Siedlungshügel in Nordthrakien und Nordostbulgarien schon lange vor dem Ende des Spätchalkolithikums auf. Am Anfang des 4. Jt. v. Chr. verlagerte sich dann des Zentrum der Metallurgie von der Küstenzone des Schwarzen Meeres zum nordwestlichen Balkan. Obwohl die frühesten muschelgemagerten Gefäße zum gleichen Zeitpunkt vereinzelt aufkamen, setzte sich diese Keramiktechnologie erst einige Jahrhunderte später während der Phase Cernavodă I-Sălcuța IV durch. Der entscheidende Wandel in der Metallurgie dagegen fand erst in der folgenden Cernavodă III (Tripolie C2)-Zeit statt.

Von besonderem Interesse ist in diesem Zusammenhang die Frage nach dem Wandel in den sozialen Netzwerken, die die Gemeinschaften durch bestimmte Wertvorstellungen und Symbole miteinander verbanden. In ein solches System für den Tausch von Prestigeobjekten sowie exotischen und alltäglichen Waren war wahrscheinlich die "Varna-Kultur" eingebunden. Die Gräber in der Küstenzone Nordostbulgariens erbringen eine besondere Dichte von vielfältigen Schmuckstücken, exquisiten Keramikgefäßen (darunter auch mit bemalter Goldverzierung), symbolisch aufgeladenen Objekten (Steinzepter, Besatzstücke in Tierform) und Rohstoffen aus weit entfernten Gebieten. Genau diese Form von "Reichtum" scheint in der folgenden Zeit zu fehlen. Die Veränderungen im ausgehenden 5. Jt. haben wohl den Umfang der Fernkontakte stark reduziert, die "Varna-Objekte" und die hiermit verbundenen traditionellen Sitten und Verhaltensformen starben zu dieser Zeit als interregionale Statusanzeiger aus. Was war die Ursache dieses Rückgangs? Wir können eine andere Perspektive ergreifen und den Wandel am Ende des Chalkolithikums nicht mit den Untergang der Varna-Kultur, sei es wegen einer feindlichen Invasion oder klimatischer Veränderungen, erklären. Stattdessen könnte ihr Rückgang mit dem Aufkommen eines neuen kulturellen Zentrums im Karpatenbecken zusammenhängen, das die Grundlage für den Reichtum in der Küstenzone der Dobrudscha untergrub.

[1] Der Beitrag umfasst die Periode zwischen ca. 4300/4200 und 3600 v. Chr. Die Begriffe (Spät)Chalkolithikum und Frühbronzezeit werden im Sinne der bulgarischen Chronologie verwendet. Alle 14C-Daten im Text sind cal. BC.

[2] **D. Popescu**. La tombe à ocre de Casimcea. – Dacia, 7–8, 1937–1940/1941, p. 85–91.

[3] Căinari in 1965, Suvorovo in 1971, Lungoci-Fundeni in 1974; noch spätere Funde wurden bei Fălciu in 1984 und bei Giurgiulești in 1991 gemacht (s. zusammenfassend in **B. Govedarica**. Zepterträger – Herrscher der Steppen. Die frühen Ockergräber des älteren Äneolithikums im karpatischen Gebiet und im Steppenraum Südost- und Osteuropas. Mainz am Rhein, 2004 und zit. Lit.).

[4] Eine Zusammenfassung und ältere Lit. in **H. Parzinger**. Der nordpontische Raum und das untere Donaugebiet in der späten Kupferzeit: Das Ende des Kodzadermen–Gumelnița–Karanovo VI-Verbandes und die Cernavodă I-Kultur. – In: **B. Hänsel, J. Machnik** (Hrsg.). Das Karpatenbecken und die osteuropäische Steppe (=PAS, 12). München, 1998, S. 123–134 und zit. Lit.

[5] **Д. И. Телегін**. Середно-стогівська культура епохи міді. Київ, 1973, с. 131 и сл.; **В. Даниленко, М. Шмаглій**. Про один поворотний момент в історії енеолітичного населення Південної Європи. – Археологія, 6, 1972, с. 3–20.

[6] Für Lit. der 1970–1980er Jahren s. **I. Manzura**. Cernavoda I culture. – In: **L. Nikolova**. The Balkans in Later Prehistory (BAR Int. Ser., 791). Oxford, 1999, p. 98 ff.; spätere Arbeiten – **D. Anthony**. The archaeology of Indo-European origins. – JIES, 19, 1991, p. 192–222, **V. Dergačev**. Two studies in defence of the migration concept. – In: **K. Boyle, C. Renfrew, M. Levine** (eds.). Ancient Interactions: East and West in Eurasia (=McDonald Institute Monographs). Cambridge, 2002, p. 93–112.

[7] Vgl. **J. Chapman**. The impact of modern invasions and migrations on archaeological explanation. A biographical sketch of Marija Gimbutas. – In: **M. Diaz-Andreu, M. L. S. Sørensen** (Hrsg.). Excavating Women: A History of Women in European Archaeology. London, 1998, p. 295–314.

[8] S. dazu **X. Тодорова**. Каменно-медната епоха в България. София, 1986, с. 225, бел. 16; G. Georgiev sieht eine genetische Beziehung zwischen Kupferzeit und Frühbronzezeit (**G. Georgiev**. Kulturgruppen der Jungstein- und der Kupferzeit in der Ebene von Thrazien (Südbulgarien). – In: **J. Böhm, S. De Laet** (Hrsg.). L´Europe à la fin de l´age de la pierre. Prague, 1961, S. 87).

[9] Die ersten ^{14}C-Daten in Nordostbulgarien kamen aus Golyamo Delčevo (**Х. Тодорова, Ст. Иванов, В. Василев, М. Хопф, Х. Квита, Г. Кол.** Селищната могила при Голямо Делчево (= РП, V). София, 1975).

[10] **Х. Тодорова, В. Василев, З. Янушевич, М. Ковачева, П. Вълев.** Овчарово (=РП, VIII). София, 1983, с. 12 и сл. (die Befunde aus Ovčarovo Platoto und Pevets kamen schon in 1972 ans Tageslicht). S. auch **Х. Тодорова**. Энеолит Болгарии. София, 1979, с. 71.

[11] Zum Begriff Kupferzeit in Bulgarien s. **G. Georgiev**. Kulturgruppen der..., S. 73.

[12] **H. Todorova**. Das Chronologiesystem von Karanovo im Lichte der neuen Forschungsergebnisse in Bulgarien. – SlA, 29, 1981, S. 208; **Х. Тодорова**. Каменно-медната..., с. 226.

[13] S. detaillierter in **M. Ivanova**. Tells, invasion theories, and warfare in fifth millennium B.C. North-Eastern Bulgaria. – In: **T. Pollard, I. Banks** (eds.). War and Sacrifice. Studies in the Archaeology of Conflict. Leiden, 2007, p. 33–48.

[14] Z.B. **J. Bojadžiev**. Radiocarbon dating from southeastern Europe. – In: **M. Stefanovich, H. Todorova, H. Hauptmann** (eds.). In the Steps of James Harvey Gaul, I. Sofia, 1998, p. 349–370 und die zitierte Lit.

[15] **A. M. Khazanov**. Nomads and the Outside World. Cambridge, 1984; **C. Renfrew**. Pastoralism and interaction: some introductory questions. – In: **K. Boyle, C. Renfrew, M. Levine** (eds.). Ancient Interactions…, p. 1–10.

[16] **A. M. Khazanov**. Nomads and the…, p. 95.

[17] **Y. Rassamakin**. The Eneolithic of the Black Sea steppe: dynamics of cultural and economic development. – In: **M. Levine, Y. Rassamakin, A. Kislenko, N. Tatarintseva** (eds.). Late prehistoric exploration of the Eurasian steppe (=McDonald Institute Monographs). Cambridge, 1999, p. 133; **C. Renfrew**. Pastoralism and..., p. 6f.

[18] **M. Levine**. The origins of horse husbandry on the Eurasian steppe. – In: **M. Levine, Y. Rassamakin, A. Kislenko und N. Tatarintseva** (eds.). Late Prehistoric Exploration ..., p. 5–58.

[19] "*Real horsemen*" – Sattel, Pferdegebisse aus Metall usw. – **A. M. Khazanov**. Nomads and the…, p. 92.

[20] *Contra* J. Lichardus (**J. Lichardus, M. Lichardus-Itten**. Nordpontische Gruppen und ihre westlichen Nachbarn. Ein Beitrag zur Entstehung der frühen Kupferzeit Alteuropas. – In: **B. Hänsel, J. Machnik** (Hrsg.). Das Karpatenbecken und..., S. 104f. und zit. Lit.).

[21] **B. Govedarica**. Zepterträger – Herrscher der Steppen ....; **Y. Rassamakin**. Die nordpontische Steppe in der Kupferzeit: Gräber aus der Mitte des 5. Jts. bis Ende des 4. Jts. v. Chr. (=AE, 17). Mainz, 2004.

[22] D. Telegins "Novodanilovka-Gruppe" (**D. Y. Telegin**. Gräberfelder des Mariupoler Typs und der Srednij Stog-Kultur in der Ukraine (mit Fundortkatalog). – In: **J. Lichardus** (Hrsg.). Die Kupferzeit als historische Epoche (=SBA, 55), T. 1. Bonn, 1991, S. 55–83) und die sog. "Suvorovo-Gruppe" (**B. Govedarica**. Das Problem der Suvorovo-Gruppe in den Ost-West-Beziehungen. – In: **B. Hänsel, J. Machnik** (Hrsg.). Das Karpatenbecken und..., S. 179 f. und zit. Lit.) bzw. Y. Rassamakins „Skelya-Kultur" (**Y. Rassamakin**. The Eneolithic of the..., p. 75f.).

[23] Zu dieser Zeit kommen auch die frühesten kleinen Hügelaufschüttungen auf (**Y. Rassamakin**. Die nordpontische..., S. 39f.). Rote Verfärbung im gesamten Grab ist schon in Gräbern der Dnjepr-Donez-Kultur belegt, siehe **D. Y. Telegin**. Gräberfelder des..., S. 55f.

[24] **D. Y. Telegin**. Gräberfelder des..., S. 60f.; **Y. Rassamakin**. The Eneolithic of the..., p. 82f.

[25] **Y. Rassamakin**. The Eneolithic of the..., p. 100f. Vgl. auch Hortfunde aus ähnlichen Objekten in Cucuteni-Siedlungen, z.B. Hăbăşeşti (**V. Dumitrescu**. Le dépôt d´objets de parure de Hăbăşeşti et le problemè des rapports entre les tribus de la civilisation de Cucuteni et les tribus des steppes pontiques. – Dacia NS, 1, 1957, p. 73–96).

[26] Căinari – **Т. Г. Мовша, Г. Ф. Чеботаренко**. Энеолитическое курганное погребение у ст. Кайнары в Молдавии. – КСИА, 115, 1969, с. 45–49; Giurgiuleşti – **B. Govedarica**. Zepterträger – Herrscher der Steppen ..., p. 92, T. 11, 12.

[27] **B. Govedarica**. Zepterträger – Herrscher der Steppen ..., S. 83, Taf. 8: 3; **М. Мирчев**. Три погребения от енеолитната епоха. – ИВАД, 12, 1961, с. 117–125.

[28] **Y. Rassamakin**. Die nordpontische..., S. 158.

[29] **I. Manzura**. Cernavoda I culture..., p. 103f. Die angeblichen Belege sind die untersten drei Strata/ Level 1 in Cernavodă "Dealul Sofia" und die "*pre-corded*" Schicht in Hîrşova. In beiden Fällen handelt es sich nach Manzura nicht um gesicherte Cernavodă I-Schichten – im Fall "Dealul Sofia" ist der kulturelle Kontext unklar, im Fall Hîrşova die Stratigraphie zweifelhaft, so dass es sich wohl um eine Gumelniţa-Schicht handelte.

[30] **I. Manzura**. Cernavoda I culture..., p. 144.

[31] **I. Manzura**. Cernavoda I culture..., p. 151; vgl. mit der traditionellen These – z.B. nach P. Roman entstand sie durch "Infiltrationen von Nachbarn" (von einer Population aus dem nordpontischen Raum in Nachbarschaft mit Gumelniţa und Cucuteni) ins Areal von Gumelniţa unmittelbar nach der Phase Cucuteni A3; diese Population war von west-azovischen Steppengruppen aus ihrem Gebiet vertrieben und nach Westen verdrängt worden **(P. Roman**. Unpublizierte Daten über die Siedlung der Cernavodă I-Kultur in Cernavodă. – In: **R. M. Boehmer, J. Maran** (Hrsg.). Lux Orientis. Archäologie zwischen Asien und Europa. Festschrift für Harald Hauptmann zum 65. Geburtstag. Rahden/Westfalen, 2001, Anm. 21, S. 350).

[32] Die Idee einer Klimakatastrophe erscheint schon bei Todorova im Jahr 1986. Zu beobachten ist eine Entwicklung der Vorstellung Todorovas von einer langsamen Veränderung (**Х. Тодорова**. Каменномедната..., с. 18 и сл., с. 223) zu einer schnellen Katastrophe (**H. Todorova**. Probleme der Umwelt der prähistorischen Kulturen zwischen 7000 und 100 v. Chr. – In: **B. Hänsel, J. Machnik** (Hrsg.). Das Karpatenbecken und..., S. 65–70; **H. Todorova**. Die tiefgreifende ökologische Krise des 4. Jahrtausends. – In: **V. Nikolov, K. Băčvarov** (Hrsg.). Von Domica bis Drama. Gedenkschrift für Jan Lichardus. Sofia, 2004, S. 107–115).

[33] **H. Todorova**. Probleme der Umwelt ..., S. 68.

[34] Die archäologischen Argumente gegen eine Zäsur zwischen 4500 und 3800 v. Chr. in Thessalien und Nordgriechenland (vgl. **H. Todorova**. Probleme der Umwelt ..., S. 68) sind weiter unten ausgeführt.

Hier werden nur die Ergebnisse der globalen Klimaforschung und der Palinologie in Nordostbulgarien und der Südukraine diskutiert.

[35] **N. Roberts**. The Holocene. An Environmental History. Oxford, 1998, p. 162f.

[36] Die "*abrupt events*" sind in Sedimentablagerungen von tropischen Seen und in der Konzentration von Methan in der Atmosphäre (nach Daten der Grönland-Eiskernbohrungen) erkennbar – **N. Roberts**. The Holocene…, p. 123, fig. 4.11 und zit Lit.

[37] Daten nach dem Profil aus dem See Orgeev in Moldawien nördlich von Chişinău, dem Kardashinskoe-Moor im Dnjepr-Tal in der Steppenzone und dem Dovjok-Moor im Dnjepr-Tal in der Waldsteppenzone (**K. Kremenetski**. Steppe and forest-steppe belt of Eurasia: Holocene environmental history. – In: **M. Levine, C. Renfrew, K. Boyle** (eds.). Prehistoric Steppe Adaptation and the Horse (=McDonald Institute Monographs). Cambridge, 2003, p. 11–27).

[38] Mit ähnlichen Ergebnissen: **C. E. Cordova, P. H. Lehman**. Archaeopalynology of synanthropic vegetation in the Chora of Chersonesos, Crimea, Ukraine. – JAS, 30(11), 2003, p. 1494; **Е. А. Спиридонова, А. С. Алешинская**. Периодизация неолита-энеолита Европейской России по данным палинологического анализа. – РА, 1, 1999, с. 30.

[39] *Contra* **H. Todorova**. Probleme der Umwelt ..., S. 68, es lässt sich eine Austrocknung in der Zeit von Cucuteni A4–Tripolie B1 nicht erkennen

[40] Drei Profile, Durankulak-1 (**E. Bozilova, S. Tonkov**. Palaeoecological studies in Lake Durankulak. – ГСУ–БФ, 1985, p. 25–30), Durankulak-2 (**E. Bozilova, S. Tonkov**. Paleoecological evidence on the vegetation history and human occupation in the coastal area of Lake Durankulak, Northeastern Bulgaria. – In: **H. Todorova** (Hrsg.). Durankulak, Bd. II. Die Prähistorischen Gräberfelder von Durankulak, T. 1. Berlin–Sofia, 2002, p. 309–311) und Durankulak-3 (**E. Marinova**. The new pollen core Lake Durankulak-3: a contribution to the vegetation history and human impact in Northeastern Bulgaria. – In: **S. Tonkov** (ed.). Aspects of Palynology and Palaeoecology. Festschrift in honor of Elissaveta Bozilova. Sofia–Moscow, 2003, p. 279–288).

[41] **E. Bozilova, S. Tonkov**. Paleoecological evidence…, p. 311.

[42] **M. Filipova-Marinova, E. Bozilova**. Palaeoecological evidence of the vegetation history and human occupation in the coastal area of Sozopol (Southeastern Bulgaria). – Сборник Добруджа, 21, 2003, p. 288. "Core F" enthielt Material aus dem Grabungsprofil der versunkenen Siedlung (Sozopol 2, Quadrat F). Die Datierung der Zonen basiert auf der Stratigraphie.

[43] **H. Todorova**. Die geographische Lage der Gräberfelder. – In: **H. Todorova** (Hrsg.). Durankulak..., T. 1, S. 21.

[44] **H. Todorova**. Einleitung. – In: **H. Todorova** (Hrsg.). Durankulak..., T. 1, S. 12–14.

[45] **H. Todorova**. Das Späteneolithikum an der westlichen Schwarzmeerküste. – StP, 1–2, 1978, S. 136–145; **Х. Тодорова**. Каменно-медната…, с. 120 и сл.; **H. Todorova**. Einleitung. – In: **H. Todorova** (Hrsg.). Durankulak..., S. 12–14; **H. Todorova**. Chronologie, horizontale Stratigraphie und Befunde. – In: **H. Todorova** (Hrsg.). Durankulak..., S. 37–40, Abb. 26.

[46] **И. Иванов**. Енеолитно селище и гробове от бронзовата епоха при град Девня. – ИНМВ, 8 (23), 1972, с. 246–259; **Х. Тодорова-Симеонова**. Късноенеолитният некропол край град Девня – Варненско. – ИНМВ, 7 (22), 1971, с. 3–40. Bisher unpublizierte Grabungen fanden in Shabla statt (**H. Todorova**. Chronologie, horizontale Stratigraphie…, p. 40). Zur Stufe Varna III zählt Todorova ferner den Fundplatz Medgidia bei Constanţa in Rümänien (**H. Todorova**. Chronologie, horizontale Stratigraphie…, S. 39 und zit. Lit.

[47] **I. Ivanov**. Die Ausgrabungen des Gräberfeldes von Varna. – In: **A. Fol und J. Lichardus** (Hrsg.). Macht, Herrschaft und Gold. Das Gräberfeld von Varna (Bulgarien) und die Anfänge einer neuen europäischen Zivilisation. Saarbrücken, 1988, S. 49–66.

[48] Morflotte, Ezerovo I, Arsenala, Strashimirovo und Poveljanovo – s. **I. Ivanov**. A la question de la localisation et des études des sites submergés dans les lacs de Varna. – Pontica, 26, 1993, p. 19–26; **H. Todorova, G. Tončeva**. Die äneolithische Pfahlbausiedlung bei Ezerovo im Varnasee. – Germania, 53, 1975, S. 30–46.

[49] Etwa vierzehn Häuser in Durankulak IV (**H. Todorova**. Einleitung..., p. 15, Abb. 8b).

[50] Über den Silex und eine einzige Obsidianklinge ägäischer Herkunft im Grab der Varna-Nekropole, s. **Л. Манолакакис**. Функции на големите пластини от Варненския некропол. – Археология, 3, 2002, с. 5. Karneolperlen als Grabbeigaben – **I. Ivanov**. Die Ausgrabungen..., S. 60, Abb. 30, **M. Avramova**. Der Schmuck aus den Gräbern von Durankulak. – In: **H. Todorova** (Hrsg.). Durankulak..., T. 1, S. 201, Tabelle 20. Importierte vulkanische Gesteine in Durankulak (Basalt, Andesit, Amphibolit u. a.) und Marmor aus Strandža-Sakar – **K. Dimitrov**. Die Artefakte aus Felsstein und ihre Nachahmungen. – In: **H. Todorova** (Hrsg.). Durankulak..., T. 1, S. 207–212. Kupfer – **K. Dimitrov**. Die Metallfunde aus den Gräberfeldern von Durankulak. – In: **H. Todorova** (Hrsg.). Durankulak..., T. 1, S. 127–158. Steinzepter – **I. Ivanov**. Die Ausgrabungen..., Abb. 23, 29.

[51] Nach H. Todorova lassen sich jedoch schwarzpolierte Gefäße der Varna III-Phase unter dem Material aus der Tripolie B2-Siedlung Novie Ruseshti I erkennen (**Х. Тодорова**. Энеолитические культуры Болгарии и их северовосточные связи. – В: **К. Н. Пицхелаури, Е. Н. Черных** (ред.). Кавказ в системе палеометаллических культур Евразии. Тбилиси 1987, с. 186).

[52] **H. Todorova**. Chronologie, horizontale Stratigraphie…, S. 39.

[53] Siehe **I. Manzura**. Cernavoda I culture..., tab. 7.5 und zit. Lit.

[54] **H. Todorova**. Die kupferzeitlichen Äxte und Beile in Bulgarien (=PBF, IX, 14). München, 1981, S. 45, Taf. 10: 155. Die kreuzschneidige Axt von Kamenar wurde zusammen mit einem Flachbeil vom Typ *Kamenar* gefunden, das dem Stück aus Reka Devnja entspricht, beide Funde gehören also der Zeit Cucuteni A4 oder etwas später an. In Reka Devnja sind ferner typische "Varna"-Objekte wie Goldperlen und Silexartefakte gefunden worden.

[55] **П. Георгиева**. Материали от преходния период между каменномедната и бронзовата епоха от Северна България. – Археология, 1, 1987, с. 10, бел. 46 – Georgieva zitiert nicht genau welche Gefäße sie meint; für das Material aus Ezerovo – **G. Tončeva**. Un habitat lacustre l´âge du bronze ancien dans les environs de la ville de Varna (Ezerovo II). – Dacia NS, 25, 1981, p. 41–62.

[56] **H. Todorova**. Chronologie, horizontale Stratigraphie…, S. 50. Siehe auch **I. Vajsov**. Das Grab 982 und die Protobronzezeit in Bulgarien. – In: **H. Todorova** (Hrsg.). Durankulak..., T. 1, S. 165 (Abb. 182), wo die Keramik aus Grab 448 der "frühe(n) Cernavodă I-Kultur" zugewiesen wird.

[57] *Contra* **H. Todorova**. Einleitung..., S. 14.

[58] **J. Bojadžiev**. Die absolute Chronologie der neo- und äneolithischen Gräberfelder von Durankulak. – In: **H. Todorova** (Hrsg.). Durankulak..., T. 1, S. 67–69.

[59] S. **J. Bojadžiev**. Die absolute Chronologie..., S. 67.

[60] J. Bojadziev hält diese Möglichkeit jedoch für unwahrscheinlich, da sie eine zu kurze Dauer der Varna-Kultur bedeuten würde (nur etwa 200 Jahre). Er nimmt eine Datierung um ca. 4100 cal. BC für das Ende von Varna an – **Я. Бояджиев**. Хронология на праисторическите култури на територията на Добруджа. – Сборник Добруджа, 9, 1991, с. 13 и сл.

[61] **Y. Rassamakin**. Die nordpontische..., S. 182.

[62] **I. Manzura**. Cernavoda I culture..., table 7.5.

[63] **I. Manzura**. Steps into the steppe: or, how the north pontic region was colonised. – OJA, 24 (4), 2005, p. 323.

[64] Zur absoluten Chronologie der Gumelnița-Kultur s. **C. Bem**. Noi propuneri pentru o schită cronologică a Eneoliticului românesk. – Pontica, 33–34, 2002, p. 43. Cernavodă I datiert nach I. Manzura in die Zeit von Cucuteni AB2 (**I. Manzura**. Cernavoda I culture..., p. 144). Zu dieser frühen Stufe gehört nach Manzura (**I. Manzura**. Cernavoda I culture..., p. 143) beispielsweise das Material aus Chirnogi, Căscioarele, Greaca und Cernavodă "Dealul Sofia".

[65] S. **П. Георгиева**. За зооморфните скиптри и последните етапи на късноенеолитните култури Варна, Коджадермен–Гумелница–Караново VI и Криводол–Съпкуца. – В: *Stephanos Archaeologicos* in honorem Professoris Ludmili Getov (=SAUS, Suppl. IV). Sofia, 2005, с. 152.

[66] **С. Чохаджиев, Н. Еленски, А. Чохаджиев**. Археологически проучвания на селищната могила край село Хотница. – АОР през 2003. София, 2004, с. 32.

[67] **П. Георгиева**. За края на енеолита в Западното Черноморие. – Сборник Добруджа, 21, 2003, с. 222.

[68] **H. Todorova**. Die kupferzeitlichen Äxte und..., S. 48, T. 15: 183; T. 16: 184. Typ *Jászladány* datiert in die Zeit von Cucuteni AB; zwei Exemplare fanden sich in gesicherter stratigraphischer Position in Telish 3 (Phase Krivodol IV) – **В. Гергов**. Праисторическото селище Телиш-Редутите и проблема за прехода между енеолита и бронзовата епоха в България. – ГДА–НБУ, I, 1994, с. 304.

[69] Ovčarovo Platoto und Pevets – **Х. Тодорова, В. Василев, З. Янушевич, М. Ковачева, П. Вълев.** Овчарово (=РП, VIII). София, 1983; Hotnitsa Vodopada – **В. Илчева**. Хотница-Водопада – селището от преходния период от енеолита към бронзовата епоха – ИИМВТ, 8, 1998, с. 66–101; Koprivets – **L. Nikolova**. The Balkans in…, p. 41 und zit. Lit. Außerdem ist eine Besiedlung mit Einzelfunden von Äxten des Typ *Tîrgu Ocna* aus Bojka in Bezirk Ruse, Strazhitsa, Hotnitsa und Mussina belegt – **H. Todorova**. Die kupferzeitlichen Äxte..., S. 49.

[70] **П. Георгиева**. За края на енеолита..., с. 219, рис. 13: 8; **П. Георгиева**. За зооморфните скиптри... , с. 150 и сл., рис. 2: 2.

[71] P. Georgieva vermutet, dass Bikovo und Kozareva mogila etwas später datieren als Starozagorski mineralni bani – **П. Георгиева**. За края на енеолита..., с. 221.

[72] **П. Георгиева**. За края на енеолита..., с. 220 и сл.; **П. Георгиева**. За зооморфните скиптри..., с. 151, рис. 3:3, 5–6, 9.

[73] **П. Георгиева**. За края на енеолита...; **П. Георгиева**. За зооморфните скиптри...; auch L. Nikolova ist der Meinung, dass die Phase Karanovo VI möglicherweise zusammen mit Krivodol endet (**L. Nikolova**. The Balkans in…, p. 53).

[74] **П. Георгиева**. За зооморфните скиптри..., с. 152, рис. 4:2, 5, 7.

[75] **П. Георгиева**. За края на енеолита..., с. 221. Indizien für eine solche Phase auch in den Tells Chatalka, Azmak, Kolena und Banjata, s. **L. Nikolova**. The Balkans in…, p. 87, **П. Георгиева**. За края на енеолита..., с. 224, бел. 30.

[76] **L. Nikolova**. The Balkans in…, p. 87. Sogar Scherben mit Parallelen in Telish 4 (Scheibenhenkel?). Keine 14C-Daten.

[77] **H. Todorova**. Die kupferzeitlichen Äxte..., S. 48, Taf. 16: 188.

[78] **П. Георгиева**. За зооморфните скиптри..., с. 152; **П. Георгиева**. За края на енеолита..., с. 221. Für die Möglichkeit, dass eine Siedlung der Cernavodă I-Periode auf dem Hügel Kaleto existierte vgl. **P. Georgieva**. A fortified settlement from the Early Bronze Age in Thrace. – In: **C. Doumas, V. La Rosa** (Hrsg.). Poliochni e l'antica Etá del Bronzo nell'Egeo Settentrionale. Athen, 1997, p. 321.

[79] **H. Todorova**. Die kupferzeitlichen Äxte..., S. 49, Taf. 17: 191, 195.

[80] Zwei Phasen, eine mit pastoser Bemalung und Graphit (Spät-Krivodol – Jagodina 1, Haramijska 1, ca. 4100–3850 cal. BC) und eine spätere, gleichzeitig mit Sălcuța IV und Cernavodă I (Jagodina 2–3, Haramijska 2) – **М. Аврамова**. Централните Родопи и проблемът за Преходния период от енеолита към бронзовата епоха. – Археология, 2, 1992, с. 51; **L. Nikolova**. The Balkans in…, p. 88, 93. Für die 14C-Daten s. Tabelle 1.

[81] Tripolie C1 – **I. Vajsov**. Die frühesten Dolche Bulgariens. – Anatolica, 18, 1992, p. 63.

[82] **П. Георгиева**. За края на енеолита..., с. 221; **П. Георгиева**. За зооморфните скиптри..., с. 153 и сл., рис. 6: 2–3, 5–9; **L. Pernicheva**. Prehistoric cultures in the middle Struma valey: Neolithic and Eneolithic. – In: **D. W. Bailey, I. Panayotov** (eds.). Prehistoric Bulgaria (=MWA, 22). Madison, 1995, p. 131f.; **С. Чохаджиев**. Ново късноенеолитно селище в басейна на река Струма. – ИИМКюстендил, 3, 1991, с. 23–38; **В. Гергов**. Праисторическото селище…, с. 303–306; in Makedonien – Šupljevec, Crnobuki, Bakarno Gumno (**M. Garašanin**. Betrachtungen zum Sălcuța–Krivodol–Bubanj-Komplex auf dem Mittleren Balkan. – StP, 1–2, 1978, S. 104f.).

[83] **L. Pernicheva**. Prehistoric cultures...; **С. Чохаджиев**. Периодизация на енеолита от басейна на р. Струма. – Във: **В. Николов** (ред.). Тракия и съседните райони през неолита и халколита (=ККПБ, I). София, 2000, с. 74; **П. Георгиева**. Материали от преходния период между каменномедната и бронзовата епоха от Северна България. – Археология, 1, 1987, с. 1–15. Danach kommt ohne kulturelle Unterbrechung der frühe Cernavodă III-Boleráz-Horizont (3600–3300 v. Chr., beispielsweise in Vaksevo Studena Voda 7 und Radomir Vahovo) – **S. Alexandrov**. The Cernavodă III–Boleráz Phenomenon of the Balkans. – In: **P. Roman, S. Diamandi** (Hrsg.). Cernavodă III–Boleráz (=SD–SS, II). Bucureşti, 2001, p. 261.

[84] **R. K. Evans**. The pottery of Phase III. – In: **C. Renfrew, M. Gimbutas, E. Elster** (eds.). Excavations at Sitagroi, vol. 1. Los Angeles, 1986, p. 404f.

[85] **R. K. Evans**. The pottery of..., p. 410, t. XIII: 6. Siehe auch H. Parzinger (**H. Parzinger**. Zur Rachmani-Periode in Thessalien. – Germania, 69, 1991, S. 378) und L. Nikolova (**L. Nikolova**. The Balkans in…, p. 84). Diese Argumente und die Radiokarbondatierungen (s. Anm. 86) sprechen gegen die Meinung von H. Todorova (**H. Todorova.** Chronologie, horizontale Stratigraphie…, S. 38, Anm. 1), dass Sitagroi III vor Gumelniţa endete.

[86] **C. Renfrew**. The Sitagroi sequence.– In: **C. Renfrew, M. Gimbutas, E. Elster** (eds.). Excavations at..., p. 173, tab. 7.2.

[87] 3330–2880 cal. BC (**P. Stadler**. Vergleich von 14C-Datierung griechischer und nordwestägäischer Fundorte der beginnenden Frühbronzezeit. – In: **P. Roman, S. Diamandi** (Hrsg.). Cernavodă III–Boleráz…, p. 104–108).

[88] Die früheste Phase Mandalo I wurde zwischen 4600 und 4300 v. Chr. datiert, die Phase Mandalo II gehört in die Zeit von 4300 bis 4000 v. Chr. – **K. Kotsakis, A. Papanthimou-Papaefthimiou, T .Savopoulou, Y. Maniatis, B. Kromer**. Carbon 14 Dates from Mandalo, Western Macedonia. – In: **Y. Maniatis** (ed.). Archaeometry: Proceedings of the 25th International Symposium. Amsterdam, 1989, p. 679–685.

[89] Siehe **H. Parzinger**. Zur Rachmani-Periode in..., p. 380. Die 14C-Daten setzen die Rachmani-Schicht in Pevkakia in das 5. Jt. v. Chr. (Tabelle 1).

[90] **H. J. Weisshaar**. Pevkakia I. Das späte Neolithikum und das Chalkolithikum. Bonn, 1989, Taf. 8: 8. Ein weiteres Ringidol (aus Gold) aus Platomagoules bei Magnesia, **G. A. Papathanassopoulos** (ed.). Neolithic Culture in Greece. Athen, 1996, p. 339, Kat. № 299.

[91] **M. Johnson**. Chronology of Greece and southeastern Europe in the Final Neolithic and the Early Bronze Age. – PPS, 65, 1999, p. 325.

[92] **M. Johnson**. Chronology of Greece…, p. 330

[93] **Х. Тодорова**. Каменно-медната епоха... , с. 55, фиг. 12.

[94] **Х. Тодорова**. Каменно-медната епоха..., с. 48 и сл. Auch nördlich der Donau endet eine Mehrzahl der Gumelniţa-Tells in der Phase A2, dort werden manche Siedlungshügel jedoch in der Zeit von Cernavodă I wiederbesiedelt; zur Besiedlung und Architektur der Cernavodă I-Kultur s. **A. Morintz**. Structuri de locuire în cadrul culturii Cernavodă I. – Traco-Dacia, 22, 1–2, 2001, p. 107–137.

[95] **L. Nikolova**. The Balkans in…, p. 393; **I. Manzura.** Cernavoda I culture..., p. 150; **L. Nikolova**. Social transformations and evolution in the Balkans in the Fourth and Third Millennia B.C. – RPRP, 4, 2000, p. 1–8. L. Nikolova definiert den Begriff "*pastoral economy*" nicht.

[96] V. Gergov beobachtet eine Abnahme der landwirtschaftlichen Geräte und der Mahlsteine in Telish 4 im Vergleich zu der früheren Schicht Telish 3, gibt aber keine weiteren Details dazu, **В. Гергов**. Праисторическото селище Телиш-Редутите и проблема ..., с. 305.

[97] Neolithisch in Gradeshnitsa Malo Pole, Temnata Dupka und Durankulak-Nekropole, spätchalkolithisch in Dolnoslav, Telish und Sozopol – **N. Spassov, N. Iliev**. The Late Pleistocene and Holocene wild horses of East Europe and the polyphyletic origin of the domestic horse. – In: **M. Stefanovich, H. Todorova, H. Hauptmann** (eds.). In the Steps of…, p. 371–389; **G. Ribarov**. Archaeozoological materials from the Eneolithic and Early Bronze Age settlement at Sozopol. – ThrP, 5, 1994, p. 51–56.

[98] Die Pferdeknochen aus Hotnitsa Vodopada: 20 Knochen von 5 Individuen, stark fragmentarisch, benutzt für Fleisch (Schnittspuren), es gibt keine eindeutigen Hinweise für Domestikation (die Schädel sind

zu stark zerstört und es fehlen auch Langknochen). – **Л. Нинов, В. Илчева**. Домашните и диви животни от праисторическото селище Хотница-Водопада. – ИИМВТ, 10, 1995, с. 132 и сл., с. 141.

[99] **Л. Манолакакис**. Функции на големите пластини..., с. 5–17; **N. Sirakov, T. Tsonev**. Chipped-stone assemblage of Hotnitsa-Vodopada (Eneolithic/Early Bronze Age transition in northern Bulgaria) and the problem of the earliest "steppe invasion" in Balkans. – PrE, 7, 1995, p. 249.

[100] **N. Sirakov, T. Tsonev**. Chipped-stone assemblage..., p. 252.

[101] **М. Мирчев**. Три погребения от...; **C. Schuster**. Zu den Spondylus-Funden in Rumänien. – Thraco-Dacia, 23, 1–2, 2002, S. 44f., Katalog und zit. Lit.

[102] **K. Dimitrov**. Die Metallfunde aus den..., p. 127–158.

[103] **E. Pernicka, F. Begemann, S. Schmitt-Stecker, H. Todorova, I. Kuleff**. Prehistoric copper in Bulgaria. – EA, 3, 1998, p. 41–180.

[104] "... the results can also be interpreted to indicate a shift with time of the importance of the mining regions, away from Medni Rid and Ai Bunar, during the Late Chalcolithic times, to Majdanpek in the Final Chalcolithic. A follow-up study with emphasis on well-dated objects from regions underrepresented in the present investigation should allow one to resolve this problem." – **E. Pernicka, F. Begemann, S. Schmitt-Stecker, H. Todorova, I. Kuleff**. Prehistoric copper..., p. 145.

[105] **V. Dergačev**. Die neolithischen und bronzezeitlichen Metallfunde aus Moldavien (=PBF, XX, 9). Stuttgart, 2002, S. 85f.

[106] Die früheste Form (Typ *Ariușd*) kommt in der Periode Cucuteni A4 auf, **V. Dergačev**. Die neolithischen und..., S. 58.

[107] **H. Todorova**. Die kupferzeitlichen Äxte und..., Taf. 25B.

[108] **V. Dergačev**. Die neolithischen und..., S. 63f., 86.

[109] Mit dem Verschwinden der kreuzschneidigen Äxte – **I. Panajotov**. Typological distinctions of the Eneolithic and Early Bronze Age Metal Tools. – StP, 1–2, 1978, p. 218–223; die Phasen Cucuteni AB und Cucuteni B haben andererseits viele Gemeinsamkeiten und werden zusammen behandelt – **V. Dergačev**. Die neolithischen und..., S. 85.

[110] **V. Dergačev**. Die neolithischen und..., S. 85.

[111] **И. В. Палагута**. К проблеме связей Триполья-Кукутени с культурами энеолита степной зоны северного Причерноморья. – РА, 1, 1998, с. 8; Ware C ist nicht zahlreich – es bildet 1–3% des ganzen Keramikmaterials in Druța I (Cucuteni A4), **И. В. Палагута**. К проблеме связей..., с. 5.

[112] In östlichen Fundorten wie Berezovskaja GES, Ruseştii Noi, Jora de Sus, Mirnoe – **И. В. Палагута**. К проблеме связей..., с. 8, рис. 3; **I. Manzura.** Cernavoda I culture..., p.150.

[113] **И. В. Палагута**. К проблеме связей..., с. 8 и сл, рис. 3.

[114] **И. В. Палагута**. К проблеме связей..., с. 12.

[115] S. **И. В. Палагута**. К проблеме связей..., с. 5 und zit. Lit.

[116] **И. В. Палагута**. К проблеме связей..., с. 10 и сл.

[117] In Bulgarien ab der Phase Krivodol IV, **П. Георгиева**. За края на енеолита…, с. 221; s. auch oben.

[118] **L. Nikolova**. Social transformations…, p. 2; **L. Nikolova**. The Balkans in…, p. 393.

[119] Z. B. in Chirnogi, Cernavodă "Dealul Sofia" und Hotnitsa Vodopada – **I. Manzura.** Cernavoda I culture..., p.143, fig. 7.9: 1-3, fig. 7.12: 1; **L. Nikolova**. The Balkans in…, p. 321.

[120] **В. Гергов**. Праисторическото селище…, с. 305.

[121] Die beiden Gräberfelder sind ungefähr gleichzeitig – Brăilița datiert in die Anfangsphase von Cernavodă I, in der Nekropole von Ostrovul Corbului ist nach L. Nikolova die "späteste Krivodol-Phase" vertreten, **I. Manzura.** Cernavoda I culture..., p.115; **L. Nikolova**. The Balkans in…, p. 359f. und zit. Lit.

[122] Sog. Khadzider-Gruppe (**I. Manzura.** Cernavoda I culture..., p. 116 f.).

[123] **П. Георгиева**. Материали от преходния период между каменномедната и бронзовата епоха от Северна България. – Археология, 1, 1987, с. 1–15.

Anhang

14C-Daten (unkalibriert BP) aus dem Zeitraum ca. 4300–3600 v. Chr.

Fundplatz	**LabNr**	**Material**	**B.P.**	**Phase/Schicht**	**Publikation**
Cucuteni Dâmbul Morii	HD-14761	Knochen?	5246±24	Cucuteni AB1	Bem 2002
	HD-14831	Knochen?	4996±26	Cucuteni AB1	Bem 2002
	HD-14544	Knochen?	5188±18	Cucuteni AB1	Bem 2002
Chapaevka	Bln-631	Holzkohle	4870±100	Tripolie B2	Videiko 2003
	Ki-880	Holzkohle	4810±140	Tripolie B2	Videiko 2003
Khatyshche	Ki-9622	Kohle?	4800±90	Tripolie B2	Videiko 2003
	Ki-9323	Knochen	4840±90	Tripolie B2	Videiko 2003
	Ki-9624	Knochen	4740±90	Tripolie B2	Videiko 2003
	Ki-9749	Knochen	4830±90	Tripolie B2	Videiko 2003
Klishchev	Le-1060	Holzkohle	5100±50	Tripolie B2	Rassamakin 1999
Brynzeny VIII	Bln-2429	Holzkohle	5360±65	Tripolie B2	Rassamakin 1999
Drăguşeni Ostrov	Bln-1195	Holzkohle	5430±100	Cucuteni A4	Rassamakin 2004
	Bln-1060	Holzkohle	5355±100	Cucuteni A4	Rassamakin 2004
	Bln-1194	Holzkohle	5205±100	Cucuteni A4	Rassamakin 2004
Scânteia	HD-14701	Knochen	5388±18	Cucuteni A4	Bem 2002
	HD-14792	Knochen	5370±26	Cucuteni A4	Bem 2002
Putineşti 3	Bln-2427	Knochen	5595±80	Cucuteni A4	Rassamakin 2004
	Lv-2156	Holzkohle	5520±70	Cucuteni A4	Rassamakin 2004
	Ki-613	Holzkohle	5060±120	Cucuteni A4	Rassamakin 2004
Hăbăşeşti	GrN-1985	Holzkohle?	5340±100	Cucuteni A3	Bem 2002
Leca Ungureni	Bln-795	-	5345±100	Cucuteni A3	Rassamakin 2004
Preuţeşti-Haltă	HD-14817	Knochen?	5423±26	Cucuteni A3	Bem 2002
Gradiştea-Ulmilor	-	Holzkohle	5110±70	Gumeniţa B1	Rassamakin 1999
Mandalo	HD-9834	-	5340±100	Mandalo II	Nikolova 1999
	HD-9833	-	5460±50	Mandalo II	Nikolova 1999
	HD-9596	-	5290±70	Mandalo II	Nikolova 1999
	HD-9563	-	5430±70	Mandalo II	Nikolova 1999
	HD-9939	-	5430±45	Mandalo II	Nikolova 1999
	HD-9602	-	5460±100	Mandalo II	Nikolova 1999
Sitagroi	Bln-774	Holzkohle	5100±120	Sitagroi III	Renfrew 1986
	Bln-881	Holzkohle	5555±100	Sitagroi III	Renfrew 1986
	BM-650b	Holzkohle	5367±85	Sitagroi III	Renfrew 1986
	Bln-882	Holzkohle	5795±100	Sitagroi III	Renfrew 1986
	Bln-883	Getreide	5545±100	Sitagroi III	Renfrew 1986
Pevkakia	Pta-1405	Holzkohle	5630±50	Unteres Strat.	Weisshaar 1989
	Pta-465	Holzkohle	5510±65	Mittleres Strat.	Weisshaar 1989
	Pta-436	Knochen	5520±80	Oberes Strat.	Weisshaar 1989
	Pta-435	Holzkohle	5770±70	Oberes Strat.	Weisshaar 1989
Pipra	Bln-2115	Getreidesamen	5295±45	Schicht 2	Görsdorf 1996

Telish	Bln-2240	Samen	5400±50	Schicht 2	Görsdorf 1996
	Bln-2388	Holzkohle	5330±50	Schicht 3	Görsdorf 1996
	Bln-2243	Holzkohle	5295±70	Schicht 3	Görsdorf 1996
	Bln-2241	Samen	5240±50	Schicht 3	Görsdorf 1996
	Bln-2242	Holzkohle	5230±50	Schicht 3	Görsdorf 1996
	Bln-2244	Holzkohle	5170±50	Schicht 3	Görsdorf 1996
Krivodol	Bln-2114	Getreide?	5445±45	-	Bem 2002
	Bln-2240	-	5400±50	Schicht 1	Nikolova 1999
	Bln-2113	Holzkohle	5295±40	Schicht 2	Görsdorf 1996
Ostrovul Corbului (Siedlung)	?	-	5260±60	Sălcuța III	Bem 2002
	?	-	5591±82	Sălcuța III	Bem 2002
	Bln-2508	-	5460±60	Sălcuța III	Nikolova 1999
	SMU-585	Holzkohle	5627±77	Sălcuța III	Bem 2002
	SMU-586	-	5588±87	Sălcuța IIIb	Nikolova 1999
Haramijska dupka	Bln-3341	Holzkohle	5230±60	Schicht 2	Görsdorf 1996
	Bln-3340	Holzkohle	5240±50	Schicht 2	Görsdorf 1996
	Bln-3343	Holzkohle	5190±60	Schicht 2	Görsdorf 1996
	Bln-3342	Holzkohle	5150±50	Schicht 2	Görsdorf 1996
	Bln-3345	Holzkohle	5150±50	Schicht 2	Görsdorf 1996
	Bln-3344	Holzkohle	5030±50	Schicht 2	Görsdorf 1996
Jagodinska Höhle	Bln-2389	Holzkohle	5265±50	Schicht 1	Görsdorf 1996
	Bln-2250	Holzkohle	5060±50	Schicht 2	Görsdorf 1996
	Bln-2249	Holzkohle	5000±50	Schicht 3	Görsdorf 1996
	Bln-2247	Samen	4960±50	Schicht 3	Görsdorf 1996
Sozopol	-	Holz	5300±45	Karanovo VI	Filipova 2003: 286
	-	Holz	5310±40	Karanovo VI	Filipova 2003: 286
Durankulak-Nekropol	Hv-13433	Knochen	5645±80	Varna III	Bojadziev 2002
	Hv-12473	Knochen	5225±250	Varna III	Bojadziev 2002
Durankulak-Insel	Bln-2111	Holzkohle	5495±60	Schicht IVb	Bojadziev 2002
	Bln-2121	Holzkohle	5475±50	Schicht IVb	Bojadziev 2002
Poveljanovo I	Bln-1140	Holz	5521±100	Varna III	Görsdorf 1996
	Bln-1141	Holz	5593±100	Varna III	Görsdorf 1996
Arsenala	-	Holz?	5390±65	Varna III	Filipova 2001: 62
Căinari	KIA-369	Knochen	5580±50	Tripolie B1	Govedarica 2004: 82
Tell Hotnitsa	Bln-125	Getreide	5560±100	Schicht 1	Görsdorf 1996
Hotnitsa Vodopada	Bln-3680	Holzkohle	4830±60	Schicht 1	Görsdorf 1996
	Bln-3681	Holzkohle	4830±60	Schicht 1	Görsdorf 1996
	Bln-3685	Holzkohle	4890±60	Schicht 1	Görsdorf 1996
	Bln-3684	Holzkohle	4950±60	Schicht 1	Görsdorf 1996
	Bln-3683	Holzkohle	4950±60	Schicht 1	Görsdorf 1996
	Bln-3682	Holzkohle	5110±50	Schicht 1	Görsdorf 1996
Ovčarovo Platoto	Bln-1511	Holzkohle	4885±80	Schicht 2	Görsdorf 1996
	Bln-1510	Holzkohle	5024±60	Schicht 2	Görsdorf 1996
	Bln-1547	Holzkohle	5140±60	Schicht 2	Görsdorf 1996

Bem 2002 **C. Bem**. Noi propuneri pentru o schita cronologica a Eneoliticului romanesk. – Pontica, 33–34, 2002, p. 25–121.

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Filipova 2001 **M. Filipova-Marinova, R. Christova**. Sea level fluctuations in the western part of the Black sea during the Holocene. – CR ABS, 54, 5, 2001, p. 59–64.

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ТЪМНИТЕ ВЕКОВЕ НА ПРЕХОДА? ПРОМЯНА И КОНТИНЮИТЕТ ПРЕЗ (ФИНАЛНИЯ) ХАЛКОЛИТ ПО ДОЛНИЯ ДУНАВ

МАРИЯ ИВАНОВА (ХАЙДЕЛБЕРГ)

С натрупването на нова археологическа информация от теренни проучвания и данни от палинологически, археоботанически, археозоологически и археометрични изследвания на материали от IV хил. пр.Хр. би трябвало разбирането ни за този хронологически период да се задълбочава. В действителност обаче, поради невъзможността да се съчетаят новите данни със старите утвърдени модели, проблемът става все по-необозрим.

В статията се обсъждат актуалното състояние на проучванията за периода 4300/4200–3600 пр.Хр. по Долния Дунав и в съседните региони и досегашните интерпретации на археологическия материал. На първо място се дискутира накратко теорията за "степната инвазия", нейното възникване и развитието и през 70-те и 80-те години на XX в. в контекста на изследванията в степната зона на Северното Черноморие и представата за групите, които я обитават, като конни номади-скотовъдци. Силното влияние на тази теория в праисторическата археология на Югоизточна Европа и интеграцията ú в почти всички модели за културното и историческо развитие през IV хил. пр.Хр. се оказва решаващо при възникването на идеята за "преходен период" между халколита и ранната бронзова епоха южно от Долния Дунав.

На второ място се обсъждат данните по тези въпроси и техните актуални интерпретации. Нови изследвания на северопонтийските общности през късното V–IV хил. пр.Хр. демонстрират, че начинът им на живот не е номадски и че няма сигурни данни за езда или развъждане на домашни коне през този период. Прецизирането на датировката на т. нар. гробове с охра (във втората половина на V хил. пр.Хр., а не след "гибелта" на халколитните "протоцивилизации"), генетичната връзка на култура Чернавода I с по-ранни халколитни явления на Балканите и реконструкцията на климатичните промени според палинологични данни от България и Украйна също позволяват да се поставят под сериозно съмнение както моделът за инвазия на степни групи, така и идеята за климатична катастрофа като причини за очевидните културни промени на границата с IV хил. пр.Хр. От друга страна, информацията от археологически разкопки и случайни находки от източната част на Балканския полуостров дават основание да се отхвърли представата за внезапен край на селищната система през халколита и едно продължително обезлюдяване на целия регион.

На последно място се разглежда идеята за дисконтинюитет в развитието през IV хил. пр.Хр. и разделянето му на "постхалколитен" и "протобронзов" периоди. Съпоставянето на данни от различни области – селищна система и топография на селищата, икономика, снабдяване със суровини, обмен и контакти, металургична технология, керамика, ритуал и погребални практики – не подкрепя този модел – промените изглежда не протичат едновременно. Най-рано започва трансформацията на селищната система още към края на втората фаза на късния халколит. Забележима промяна в керамиката настъпва няколко века по-късно, а прекъсване в металургичната традиция се наблюдава чак в средата на IV хил. пр.Хр. Става дума очевидно за един процес, който започва още през третата четвърт на V хил. пр.Хр. и се развива без ясно прекъсване до началото на културния хоризонт, който традиционно се нарича "ранен бронз" (Чернавода III–Езеро A). Този процес досега е слабо познат и причините за началото му са неясни. С известни резерви се предлага идеята, че той е свързан отчасти с възникването на нов център в северозападните Балкани, западане на общностите в източната част на Балканския полуостров и превръщането им в "периферия".

VARNA UND İKİZTEPE – ÜBERLEGUNGEN ZU ZWEI FUNDPLÄTZEN AM SCHWARZEN MEER[1]

CLEMENS LICHTER (KARLSRUHE)

Die unter der Leitung von Ivan Ivanov freigelegte, durch die Ausstellung "Das erste Gold der Menscheit"[2] weltweit bekannt gewordene Nekropole von Varna unterscheidet sich nicht allein durch die überaus reiche Ausstattung einiger Gräber mit rund 3000 Goldobjekten deutlich von den übrigen bekannten Gräberfeldern der Varna-Kultur. Auch hinsichtlich der Ausstattung mit anderen Prestigegütern wie z.B. Kupferschwergeräten oder langen Silexklingen machen sich gravierende Unterschiede zwischen den Nekropolen um den Varna-See (Varna und Devnja[3]) auf der einen und der ebenfalls an der bulgarischen Schwarzmeerküste gelegenen, zeitgleichen Nekropole von Durankulak[4] auf der anderen Seite bemerkbar[5]. Demgegenüber lassen sich etwa bezüglich der übrigen Grabausstattung (Anzahl und Lage der Gefäße im Grab; Ausstattungsmuster von nichtmetallischen Gegenständen) oder der Totenhaltung (Rückenstrecker, Hockerbestattungen) und Ausrichtung kaum Differenzen feststellen[6]. Kulturell bedingte, durch Beigaben- oder Trachtsitten hervorgerufene Unterschiede scheiden als Begründung für die prunkvolle Ausstattung einzelner Gräber in Varna folglich aus.

Als eine mögliche Ursache für den Reichtum in Varna ist die verkehrsgeographisch günstige Lage mit einem guten Anlegeplatz und das Hinterland aufschließenden Flussläufen in Erwägung gezogen worden[7], die Varna möglicherweise zu einem bedeutenden Umschlagplatz für den Tausch von Kupfer, Gold und Spondylus in der zweiten Hälfte des 5. Jahrtausends machte.

Anlass zu diesen Überlegungen gaben verschiedene Beobachtungen:

Rohmaterialien von Kupferartefakten aus der Steppen- und Waldsteppenregion Moldaviens und der Ukraine können eindeutig auf Lagerstätten im Balkanraum (Ai Bunar) zurückgeführt werden[8]. Nach Analysen kann zusätzlich zu Rohstoffquellen aus dem Landesinneren ausschließlich an der Schwarzmeerküste ein Kupfererz nachgewiesen werden, für das Medni Rid bei Burgas als Herkunftsort wahrscheinlich erscheint. D.h. die Küstenregion an der bulgarischen Schwarzmeerküste verfügte offenbar über zusätzliche, dem Hinterland unzugängliche Kupfererzquellen[9].

Ähnlich scheint es sich auch bei den Goldfunden zu verhalten. Nach Hartmann[10] bleibt von den beiden in Varna festgestellten Goldsorten B und BP die sich durch einen hohen Platingehalt auszeichnende Sorte BP auf den Bereich von Varna beschränkt und war im Hinterland nicht mehr nachweisbar. Mischungen von beiden Goldsorten

in Varna legen Verarbeitung vor Ort nahe, d.h. das Rohmaterial wurde offensichtlich importiert[11]. Das Herkunftsgebiet für die Goldsorte BP vermutet Hartmann nord- bzw. südöstlich des Schwarzen Meeres.

Was den Spondylus angeht, so wurde der Annahme, dass dessen natürliches Vorkommen auf das Mittelmeer beschränkt sei, von Todorova widersprochen[12]. Sie verwies auf Klimaänderungen im 4. Jahrtausend und vermutet für die vorangegangenen Perioden ein Vorkommen von Spondylus im Schwarzen Meer. Ungeachtet dessen belegen die zahlreichen Spondylusfunde aus Gräbern an der westlichen Schwarzmeerküste den Zugang zu diesem Rohstoff, sei es nun durch Tausch oder lokale Ressourcen.

Angesichts dieser Beobachtungen stellt sich nun die Frage, ob es sich bei Varna um ein isoliertes, einzelnes Phänomen gehandelt hat oder ob nicht auch weitere, zentrale Plätze im Schwarzmeergebiet lokalisiert werden können. Schließlich wäre der Frage nachzugehen, ob diese Plätze in Beziehung zu Varna gesetzt werden können.

Das über 2000 m tiefe, bis zu 950 km (O–W) lange und über 500 km (N–S) breite Schwarze Meer ist mit den übrigen Weltmeeren einzig durch den schmalen, an einigen Stellen nur wenige hundert Meter breiten, ca. 35 km langen Bosporus verbunden. An der Nordwest-, Nord- und Nordostküste des Schwarzen Meeres münden mit Donau, Dnjestr, Dnjepr, Bug und Don einige der wasserreichsten Flüsse Europas in das Schwarze Meer und sorgen für reichhaltige Süßwasserzufuhr. Da der Wasserzufluss aus den Flüssen die Menge des verdunstenden Wassers übersteigt, liegt der Salzgehalt des Schwarzen Meeres unter jenem bspw. des Marmara- oder Mittelmeeres. Darüber hinaus

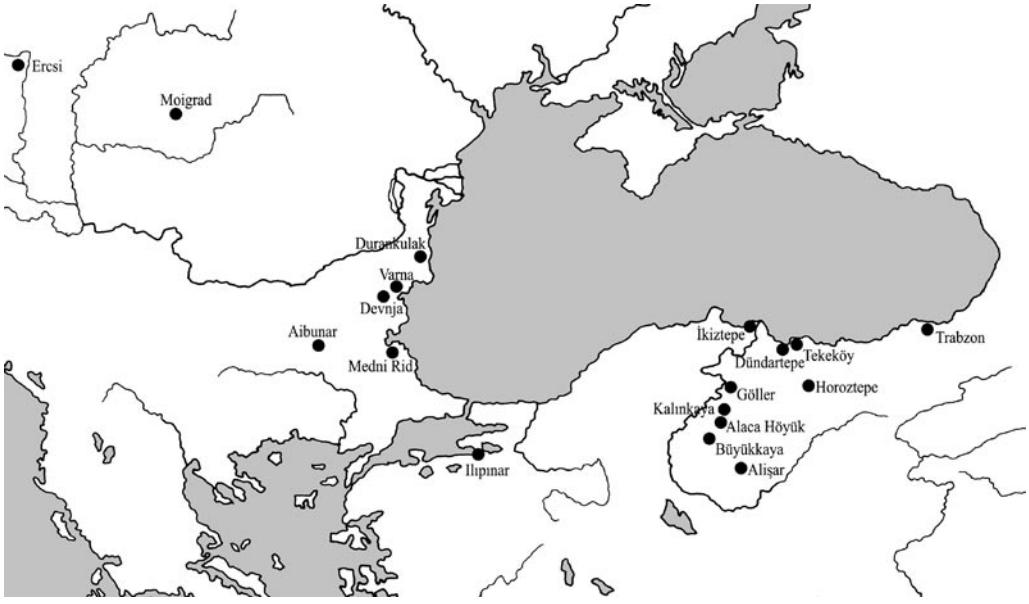

Abb. 1. Einige der im Text genannten Fundplätze

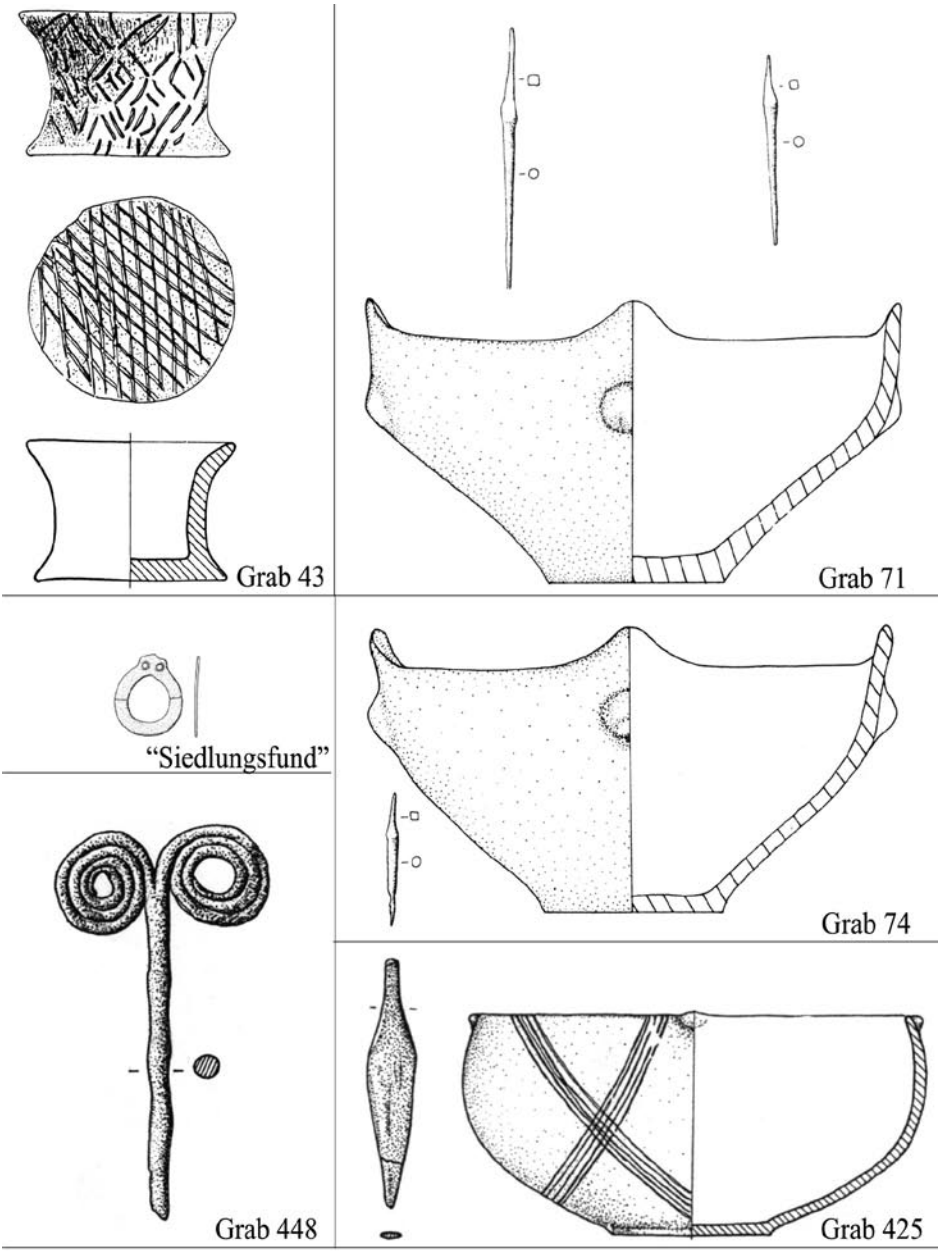

Abb. 2. Gräber aus İkiztepe: Grab 43, 71, 74 (Gefäße nach **U. B. Alkım, H. Alkım, Ö. Bilgi**. İkiztepe II..., Taf. XL, 7; Taf. LXXX, 1–2; Kupferpfrieme nach **Ö. Bilgi**. Metal objects I, № 82, 96 u. 106); Grab 425 (nach **Ö. Bilgi**. Metal objects II, № 219 u. 452); Grab 448 (nach **Ö. Bilgi**. Metal objects II, № 241); "Siedlungsfund" – goldener Ringanhänger aus Hügel I, Schnitt D, building level 3 (nach **Ö. Bilgi**. Metal objects I, № 265)

strömt mehr Wasser aus dem Schwarzen Meer in das angrenzende Marmara-Meer als umgekehrt[13]. Aufgrund archäologischer und naturwissenschaftlicher Argumente ist für die Zeit der Varna-Kultur mit einem gegenüber heute wenige Meter niedrigeren Wasserspiegel zu rechnen[14].

Im Unterschied zur inselreichen und somit für die prähistorische Seefahrt überschaubaren, klimatisch begünstigten Ägäis birgt die Schifffahrt im weitgehend insellosen, wetterungünstigeren Schwarzen Meer deutlich höhere Risiken und stellt zweifellos höhere Anforderungen[15]. Für die Frühzeit ist ohnehin davon auszugehen, dass man bei der Schifffahrt einen Weg entlang bzw. in Sichtweite der Küste gewählt hat. Dies zum einen, weil die damaligen Boote wenig hochseetauglich gewesen sein dürften, zum anderen weil mit häufigen Landgängen (Trinkwasser, Nahrungsversorgung, Nachtlager) der Seefahrer zu rechnen ist[16].

Entlang der bulgarischen Schwarzmeerküste ist durch intensive Forschungen der letzten Jahrzehnte eine Vielzahl äneolithischer Siedlungen bekannt geworden, die z.T. unterhalb des heutigen Meeresspiegels, d.h. nahe der alten Küstenlinie liegen und auf eine intensive Besiedlung der Schwarzmeerküste hindeuten[17].

Demgegenüber sind entlang der anatolischen Schwarzmeerküste sowohl durch die Geländesituation mit uferparallelen Gebirgszügen, die nur durch relativ kleine Einbuchtungen und Durchbrüche gekennzeichnet sind, als auch durch geringe Forschungstätigkeit bislang nur wenige prähistorische Fundplätze bekannt[18]. Eine Ausnahme bildet der etwa 50 km nordwestlich von Samsun, in der Bafra-Ebene befindliche Siedlungskomplex İkiztepe. Der Fundplatz liegt nahe der alten Mündung des Kızılırmak – dem mit über 1300 km längsten Fluss Anatoliens – in das Schwarze Meer. Die Grabungen wurden 1974 begonnen und dauern noch an. Vorberichte wurden publiziert[19]. An verschiedenen Stellen auf den vier Kuppen (İkiztepe I–IV) angelegte Sondagen sind stratigraphisch nicht miteinander verbunden.

Auch wenn die Quellenlage für die prähistorische Entwicklung an der nordanatolischen Schwarzmeerküste vorläufig noch als unzureichend bezeichnet werden muss, so wurde die von den Ausgräbern für İkiztepe erwogene zeitliche Einordnung in die Frühe Bronzezeit anhand von einigen Außenvergleichen und allgemeinen Überlegungen zu Recht grundsätzlich in Zweifel gezogen[20]. H. Parzinger schlug eine vorbronzezeitliche Datierung eines Großteiles der Schichtenfolge des İkiztepe vor[21]. Zu ähnlichen Schlüssen kam auch L. Thissen, der Vergleiche zwischen Siedlungsfunden aus İkiztepe und Funden aus dem rund 50 km weiter östlich gelegenen chalkolithischen Fundplatz Dündartepe bei Samsun anstellte[22].

Auf dem Hügel İkiztepe I wurden außer Siedlungsschichten seit 1975 mehrere hundert Bestattungen freigelegt. Nach Ö. Bilgi gehören diese überwiegend der Stufe Frühbronzezeit III an. Eine "Umdatierung" großer Teile der Abfolge des İkiztepe in eine vorbronzezeitliche Periode wie bereits vorgeschlagen (s.o.) bliebe für die Nekropole jedoch nicht folgenlos.

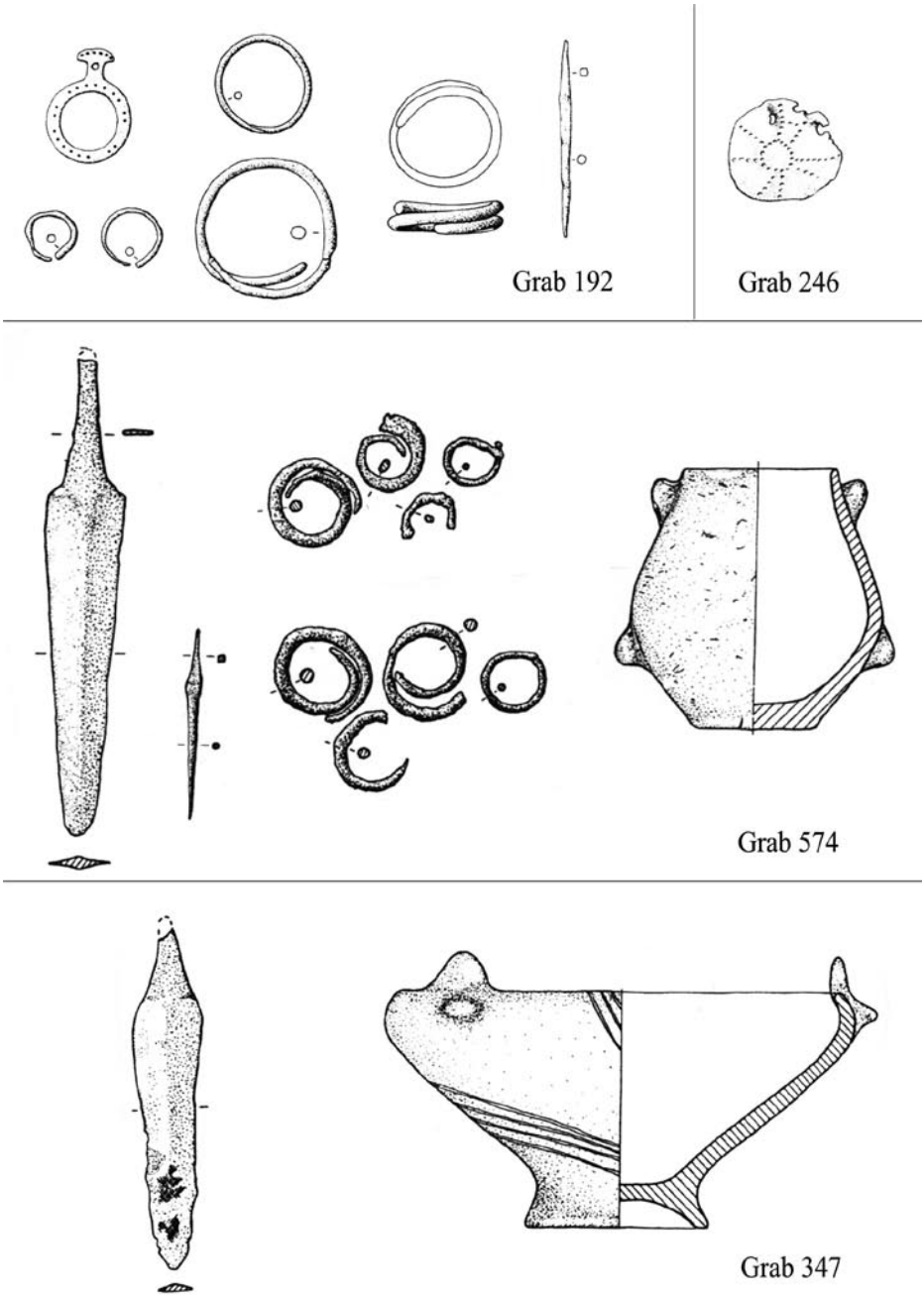

Abb. 3. Gräber aus İkiztepe: Grab 192 (nach **Ö. Bilgi**. Metal objects I, № 102, 209, 231, 237, 244, 266; Grab 246 (nach **Ö. Bilgi**. Metal objects I, № 267; Grab 574 (nach **Ö. Bilgi**. Metal objects II, № 87, 134, 376, 377, 449); Grab 347 (nach **Ö. Bilgi**. Metal objects II, № 212, 450)

Über die Gräber selbst sind nur wenige Angaben veröffentlicht[23]. In keinem Fall scheinen Grabgruben beobachtet worden zu sein. Die Bestattungen wurden in unterschiedlichen Tiefen angetroffen und überlagerten, bzw. störten einander. Eine langandauernde Belegung ist also anzunehmen und muss vor dem Hintergrund der oben erwähnten vermutlich größeren zeitlichen Tiefe des Fundplatzes nicht verwundern. Die Toten waren meist in gestreckter Rückenlage niedergelegt, auf den veröffentlichten Plänen[24] können auch einige Hockerbestattungen in rechter oder linker Seitenlage ausgemacht werden. Bei der Orientierung dominiert die südliche Ausrichtung mit Abweichungen nach West und Ost, nur wenige Bestattungen zeigen eine entgegengesetzte Orientierung.

Aus den verschiedenen Vorberichten können einige Grabinventare rekonstruiert werden, ob diese allerdings vollständig sind, lässt sich vorläufig nicht entscheiden.

Zahlreiche in İkiztepe geborgene Metallartefakte wurden in zwei Berichten veröffentlicht[25]. Über 500 Metallartefakte stammen aus etwa 200 Gräbern, darunter mehr als 60 Lanzenspitzen. Das Rohmaterial der Kupferindustrie aus İkiztepe ist höchstwahrscheinlich in der näheren Umgebung zu suchen[26]. Gegen die von den Ausgräbern vorgeschlagene, nahezu ausschließliche Datierung der Gräber an das Ende der frühen Bronzezeit (FB III) und damit an das Ende des dritten vorchristlichen Jahrtausends spricht zunächst die Beobachtung, dass die Metallfunde aus İkiztepe weder typologisch noch hinsichtlich der Metallzusammensetzung mit Arsenanteilen von bis zu 12%[27] mit den weniger als 200 km entfernten, sicher an das Ende des 3. Jahrtausends gehörenden Metallfunden aus Alaca Höyük oder Horoztepe in Verbindung gebracht werden können[28]. Ähnlich hohe Arsenwerte sind hingegen aus den spätchalkolithischen Gräbern des über 550 km entfernten Fundplatzes Ilıpınar am Iznik See in Nordwestanatolien bekannt[29]. Die dortigen Bestattungen gehören nach 14C-Daten der ersten Hälfte des 4. Jahrtausends an[30]. Typologische Parallelen zwischen Ilıpınar und İkiztepe zeigen sich auch in den Beilklingen mit runder ausschwingender Schneide[31]. Beiltypen dieser Art treten in Südosteuropa überwiegend seit dem Beginn des 4. Jahrtausends in Erscheinung[32].

In Ilıpınar fehlen allerdings die in İkiztepe so zahlreichen Lanzenspitzen[33], dafür könnten aber auch unterschiedliche Beigaben- bzw. Trachtsitten verantwortlich gemacht werden, schließlich handelt es sich in İkiztepe vorwiegend um Bestattungen in gestreckter Rückenlage, während in Ilıpınar ausschließlich in Hocklage bestattet wurde. Vergleichbare Arsenwerte sind für den bulgarischen Raum etwa aus der nachvarnazeitlichen, und damit sicherlich in das 4. Jahrtausend gehörigen als "Übergangszeit" und "Protobronzezeit" bezeichneten Phase belegt[34]. Charakteristisch für diesen Abschnitt ist in Südosteuropa das Auftreten der ersten Metalldolche[35], eine Fundgattung, die sowohl aus den zeitgleichen Gräbern in Ilıpınar aber auch aus jenen in İkiztepe bekannt ist. Vorläufig ist festzuhalten, dass sich sowohl für das Rohmaterial (Arsengehalt der Artefakte) von İkiztepe als auch für einige formenkundliche Aspekte Parallelen im vierten vorchristlichen Jahrtausend abzeichnen.

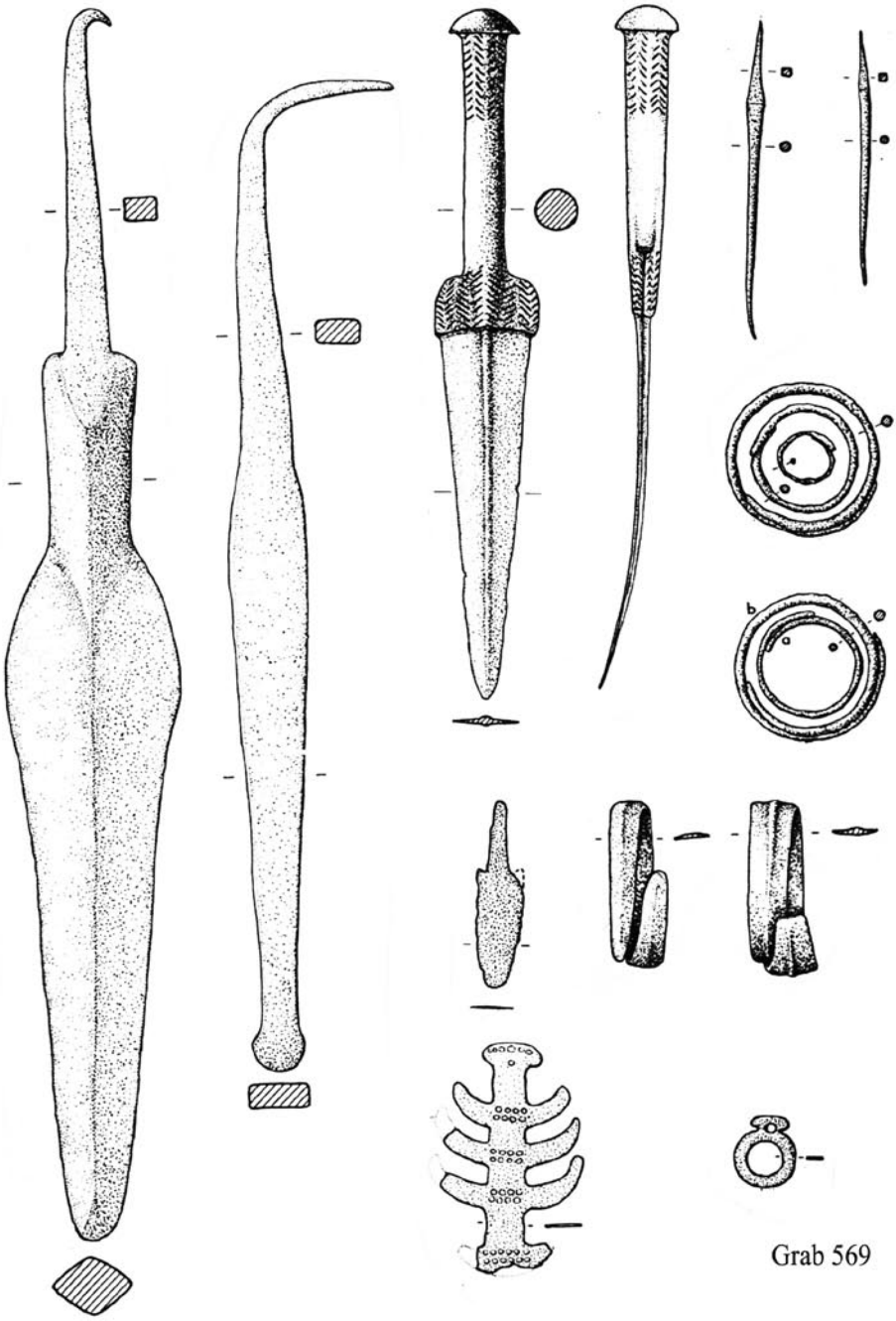

Abb. 4. Grab 569 aus İkiztepe: (nach **Ö. Bilgi**. Metal objects II, № 42, 74, 111, 114, 183, 206, 342, 366, 396, 397, 427, 436)

Bereits Parzinger hat die Aufmerksamkeit auf einige Metallobjekte aus Gräbern des İkiztepe wie z.B. Ringanhänger, Zierscheiben oder auch Brillenspiralen gelenkt und auf eine mögliche Verbindung zur Varna–Kultur hingewiesen[36].

Aus den Gräbern 192 (Abb. 3) und 569 (Abb. 4) stammen jeweils Ringanhänger aus Blei[37]. Grab 246 (Abb. 3) barg eine Zierscheibe aus Blei[38]. Ein weiterer goldener Ringanhänger (Abb. 2) ist aus den Siedlungsschichten des İkiztepe überliefert[39].

Aus Göller stammt ein Exemplar aus Silber[40]. Dieser Fundplatz liegt rund 35 Kilometer nordöstlich von Çorum, etwa 110 Kilometer südsüdwestlich von İkiztepe. Von einem offensichtlich durch Raubgrabungen zerstörten Gräberfeld gelangten Objekte in verschiedene Museen. Allerdings können die näheren Umstände bzw. speziell die Fundumstände des genannten Silberanhängers nicht näher bestimmt werden. Zeitlich wird die Nekropole in die Frühe Bronzezeit eingeordnet. Allerdings lässt sich dieser Datierungsvorschlag vorläufig nicht überprüfen und muss auch nicht für die gesamte "Nekropole" gelten.

Ein weiterer Goldanhänger stammt aus Kalınkaya[41], ebenfalls in der Provinz Çorum, nur 3 km nördlich von Alaca Höyük gelegen. An diesem ebenfalls unveröffentlichten Siedlungsplatz sollen zahlreiche intramurale Gräber mit Metallartefakten zum Vorschein gekommen sein[42]. Es bleibt offen, ob der genannte Ringanhänger aus regulären Grabungen stammt oder zu den nach illegalen Raubgrabungen sichergestellten Funden gehört.

Aus dem Kunsthandel stammen zwei "Fundeinheiten" mit mehreren goldenen Ringanhängern, deren Herkunftsangabe "aus der Umgebung von Trabzon" ebensowenig gesichert ist wie ihre Zusammengehörigkeit[43].

Insgesamt zeichnet sich damit eine Verbreitung der Ringanhänger an der südlichen Schwarzmeerküste und im nördlichen Zentralanatolien deutlich ab. Überaus bemerkenswert ist die große Menge an Metallartefakten, die aus dieser Region überliefert ist[44].

In Südosteuropa treten Ringanhänger (meist aus Gold) in der zweiten Hälfte des 5. Jahrtausends überwiegend im Bereich der Kodžadermen–Gumelnița–Karanovo VI (KGK VI) Kulturen auf[45]. Im Karpatenbecken sind sie nicht nur in der zweiten Hälfte des 5. Jahrtausends (Tiszapolgàr-Kultur), sondern weiterhin auch noch in der ersten Hälfte des 4. Jahrtausends belegt (Bodrogkeresztúr-Kultur, Vajska, Hunyadihalom), treten aber in der nachfolgenden Badener-Kultur nicht mehr in Erscheinung[46]. Im Bereich der Ägäis bleiben die Ringanhänger ebenfalls auf den gleichen Zeitraum – die zweite Hälfte des 5. und die erste Hälfte des 4. Jahrtausends – beschränkt[47]. Die auf den ersten Blick ungewöhnlichen Rohmaterialien Blei und Silber für die Ringanhänger werden durch die Existenz weiterer Schmuckobjekte aus Silber wie auch den Nachweis von Blei im 4. Jahrtausend weitgehend relativiert[48]. Die Ringanhänger aus Blei oder Silber von İkiztepe oder Göller wären im 4. Jahrtausend daher alles andere als ungewöhnlich[49].

Ein weiteres Objekt ist der aus Grab 41 in İkiztepe stammende kupferne "anthropomorphe Anhänger" (Abb. 6: 7), der Ähnlichkeiten mit einigen Goldobjekten aus den

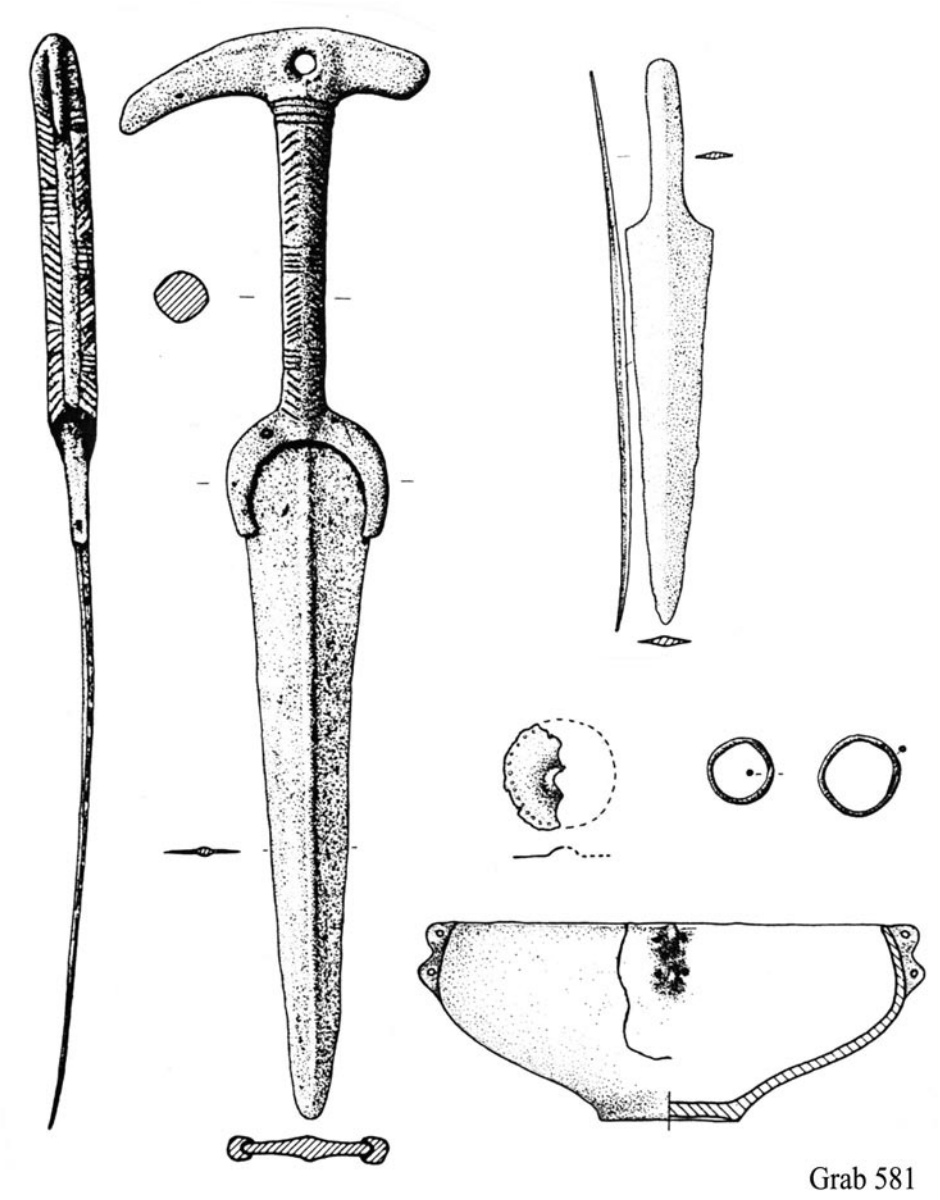

Abb. 5. Grab 581 aus İkiztepe: (nach **Ö. Bilgi**. Metal objects II, № 184, 185, 331, 332, 431, 447)

Fundplätzen Moigrad (Siebenbürgen/Rumänien) (Abb. 6: 1–4) und Ercsi (NO-Transdanubien/Ungarn) (Abb. 6: 6) aufweist[50]. Allgemein werden diese Funde der ungarischen Hochkupferzeit (Bodrogkeresztúr- bzw. Lasinja-Kultur) zugewiesen und gehören demnach in die erste Hälfte des 4. Jahrtausends.

Aus Grab 448 (Abb. 2) in İkiztepe[51] stammt eine Doppelspiralkopfnadel. Ähnliche Typen scheinen zwar im bulgarischen Raum chronologisch auf die späten Stufen des KGK VI-Komplexes beschränkt zu sein[52]. Weitere Vergleichsstücke sind allerdings in Anatolien in verschiedenen Zeithorizonten vom Chalkolithikum bis in die Mittlere Bronzezeit belegt und damit für die chronologische Auswertung wenig geeignet[53].

Neben den veröffentlichten Metallartefakten aus den Gräbern sind in den Vorberichten einige wenige Gefäße abgebildet, die zumindest einen Eindruck von der Grabkeramik vermitteln. Einen Datierungsansatz bildet eine einziehende Schalenform mit feiner Weißbemalung aus Grab 425 (Abb. 2). Entsprechende Stücke sind auch aus Dündartepe oder Tekkeköy bekannt[54]. Der Napf mit konkaver Wandung aus Grab 43 (Abb. 2) findet eine Entsprechung in den chalkolithischen Schichten 14–9 aus Alaca Höyük oder entsprechenden Inventaren aus Horoztepe[55]. Ob man dem Vergleich zwischen Schalen mit ausziehenden Lappen aus den Gräbern 71, 74 und 276 in İkiztepe (Abb. 2) und den Exemplaren aus Büyükkaya[56] chronologische Bedeutung beimessen kann, muss sich anhand weiterer Funde und Befunde allerdings erst noch erweisen[57].

Im Vorangegangen wurden einige Indizien angeführt, die darauf hindeuten, dass zumindest einige der Gräber von İkiztepe älter sind als von den Ausgräbern vorgeschlagen. Ausschlaggebend hierfür sind sowohl die fehlenden Analogien mit gesichert spät-frühbronzezeitlichen Gerätetypen als auch die Metallzusammensetzung (Arsengehalte), für die sich eher Analogien im 4. Jahrtausend finden lassen (Ilıpınar). Die charakteristischen Ringanhänger bleiben in Südosteuropa und der Ägäis auf die zweite Hälfte des 5. und die erste Hälfte des 4. Jahrtausends beschränkt. Innerhalb dieses Zeitfensters müssten auch die Exemplare aus Anatolien anzusiedeln sein, denn schließlich wäre es wenig überzeugend anzunehmen, dass diese im nördlichen Zentralanatolien erst 1300 Jahre später in Erscheinung treten. Für eine Zeitstellung innerhalb der ersten Hälfte des 4. Jahrtausends spricht die Verwendung des Arsenkupfers. Gerätetypen wie z.B. bestimmte Beilformen oder Dolche deuten ebenfalls in diese Richtung. Eine unmittelbare Verbindung zwischen İkiztepe und Varna lässt sich nicht herstellen, da sich mit Ausnahme der Ringanhänger keine weiteren Analogien etwa bei den Geräteformen finden lassen. Die spezifischen Axttypen (z.B. Varna, Devnja, Pločnik, Vidra), lange Silexklingen oder Spondylusarmringe aus Varna und Devnja, wie offenbar auch die verwendeten Metallsorten finden keine entsprechenden Parallelen in den Grabinventaren von İkiztepe. Umgekehrt stammen aus Varna nur zwei Lanzenspitzen, während zahlreiche (entwickeltere) Formen aus İkiztepe bekannt geworden sind. Die beobachteten Unterschiede können wiederum als ein Indiz für eine Datierung der Gräber des İkiztepe in das (nachvarnazeitliche) 4. Jahrtausend herangezogen werden.

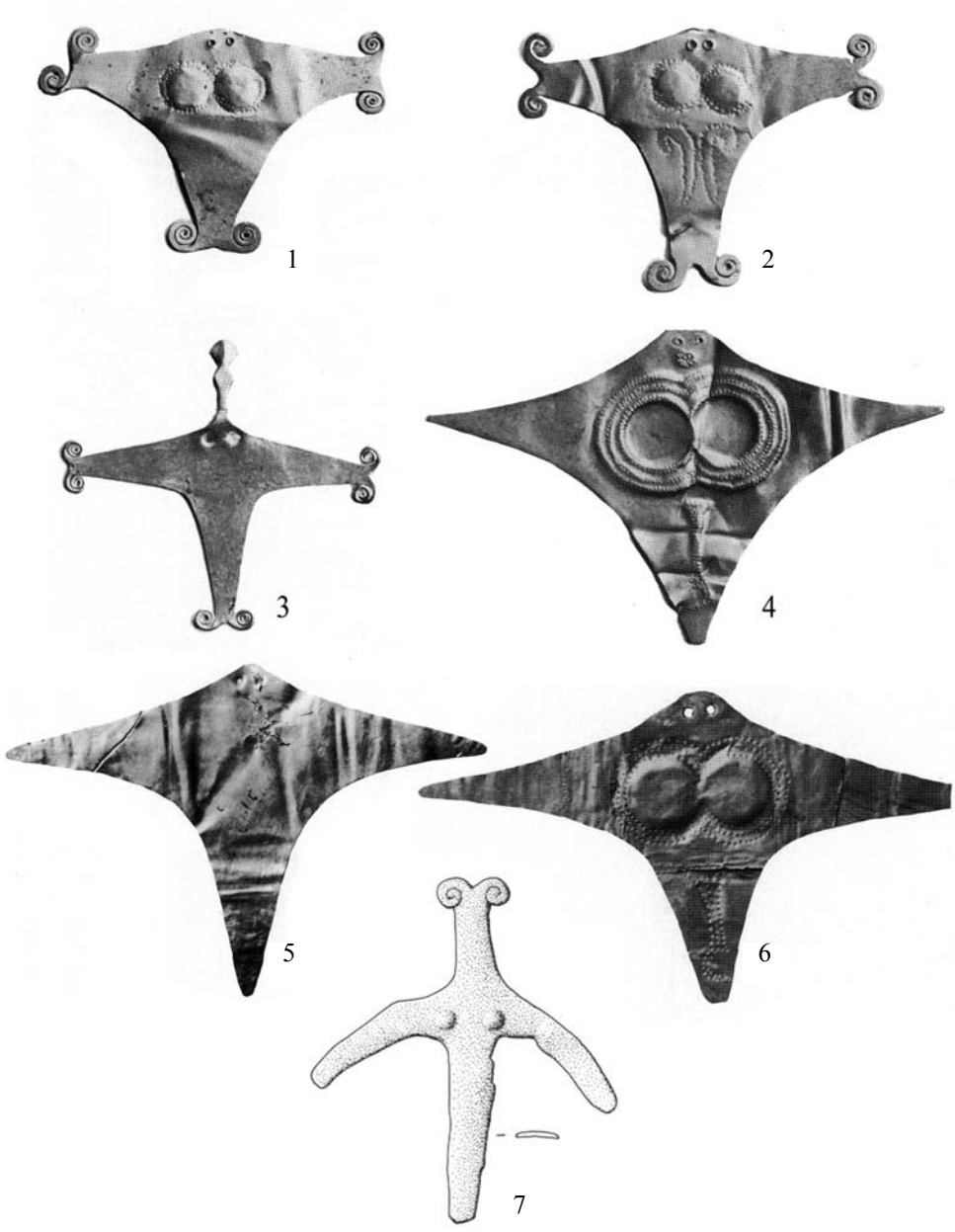

Abb. 6. Anthropomorphe Anhänger: 1–4 – Moigrad; 5 – Fundort ubkt.; 6 – Ercsi; 7 – İkiztepe (1–6 nach **J. Makkay**. The Tiszaszőlős..., pl. 10–13; 7 nach **Ö. Bilgi**. Metal objects I, № 270)

Angesichts der zahlreichen Metallfunde aus dem nördlichen Zentralanatolien und der sich anschließenden Schwarzmeerküste, dem Mündungsgebiet des Kızılırmak und des Yeşil Irmak deutet vieles darauf hin, dass dieses Gebiet mit Beginn der aufkommenden Metallurgie eine Blüte erlebte. Vor diesem Hintergrund erscheinen die frühbronzezeitlichen "Fürstengräber" aus den Fundplätzen Alaca Höyük und Horoztepe nicht isoliert, sondern wären Folge einer langandauernden, weit in das 4. Jahrtausend hinabreichenden Entwicklung. Es ist anzunehmen, dass der İkiztepe durch seine verkehrsgeographisch günstige Lage nahe der Mündung des Kızılırmak dabei für einen gewissen Zeitraum eine herausragende Stellung eingenommen hat.

Es spricht einiges dafür, dass das Schwarze Meer mindestens seit der zweiten Hälfte des 5. vorchristlichen Jahrtausends als Verkehrsweg diente. Einzelne, zentrale Küstenstandorte dienten dabei als Umschlagplatz für Güter aus dem bzw. in das Hinterland. Gibt es für Varna bereits Überlegungen bezüglich der getauschten Waren (Kupfer, Gold, Spondylus), so bleibt diese Frage für İkiztepe noch weitgehend unbeantwortet. Zu denken wäre hierbei ebenfalls an Kupfer aus dem Hinterland, allerdings liegen vorläufig noch keine näheren Indizien/Analysen vor. Ein direkter Kontakt von İkiztepe etwa mit dem bulgarischen Varna ist zunächst aus chronologischen Gründen eher unwahrscheinlich. Darüber hinaus wäre in diesem Fall mit Analogien etwa bei spezifischen Schwergeräteformen des Ostbalkans und dem nördlichen Zentralanatolien zu rechnen, was allerdings nicht der Fall zu sein scheint.

Insgesamt bleiben die immer wieder genannten Parallelen zwischen der türkischen Schwarzmeerküste und dem west- bzw. nordwestpontischen Raum[58] auf Ähnlichkeiten weniger Einzelelemente beschränkt, deren tatsächliche Beweiskraft ohnehin zunächst anhand einer gesicherten relativen und absoluten Chronologie zu überprüfen wäre. Dass diese Voraussetzungen für das Chalkolithikum an der türkischen Schwarzmeerküste vorläufig nicht gegeben sind, ist offensichtlich. Andererseits lässt die Beschränkung der Analogien auf einige wenige Einzelelemente, und der Umstand, dass für den entsprechenden Zeitraum "nur" mit Schifffahrt entlang und nahe der Küste zu rechnen ist, einen direkten Kontakt zwischen den genannten Regionen auch nicht erwarten. Die Bedeutung der Küstenstandorte Varna und İkiztepe scheint auf die jeweilige Region beschränkt, eine überregionale Rolle im Warenaustausch des Schwarzmeerraumes lässt sich aus den zur Verfügung stehenden Quellen weder für das 5. noch für das 4. Jahrtausend ableiten.

[1] Manuskriptabschluss 01/2005.

[2] z.B. **N. Egami, T. Hayashi, A. Hori (**eds.). The first civilization in Europe and the oldest gold in the world – Varna, Bulgaria. Tokyo,1982; **G. Biegel** (Hrsg.). Das erste Gold der Menschheit. Freiburg, 1986; **C. Eluère** (ed.). Le premiér or de l'humantité en Bulgarie 5^{iéme} millénaire. Paris, 1989.

[3] **Х. Тодорова-Симеонова**. Късноенеолитният некропол край град Девня–Варненско. – ИНМВ, 7 (22), 1971, с. 3–40.

[4] **H. Todorova** (Hrsg.). Durankulak, Band II. Die prähistorischen Gräberfelder von Durankulak. Sofia–Berlin, 2002.

[5] Zum Vergleich: das Gräberfeld von Varna erbrachte rund 6 kg Gold (**H. Todorova, I. Vajsov**. Der kupferzeitliche Schmuck Bulgariens (=PBF, XX, 6). Stuttgart, 2001, S. 104), jenes aus Durankulak gerade einmal 50,45 g (**K. Dimitrov**. Die Metallfunde aus den Gräberfeldern von Durankulak. – In: **H. Todorova** (Hrsg.). Durankulak..., S. 128). Anzahl der Kupferschwergeräte aus Varna – 57; aus Durankulak – 7; siehe hierzu auch **C. Lichter**. Untersuchungen zu den Bestattungssitten des Südosteuropäischen Neolithikums und Chalkolithikums (=HAW–IIKEVB, B. 5). Mainz am Rhein, 2001, S. 102.

[6] **C. Lichter**. Untersuchungen zu den..., S. 98–108.

[7] **O.-H. Frey**. Varna – ein Umschlagplatz für den Seehandel in der Kupferzeit? – In: **J. Lichardus** (Hrsg.). Die Kupferzeit als historische Epoche (=SBA, 55). Saarbrücken, 1991, S. 195–201; für die zu dieser Zeit verwendeten kiellosen Schiffstypen sind regelrechte "Hafenanlagen" ohnehin nicht notwendig, da kiellose Wasserfahrzeuge relativ einfach an den Strand gezogen werden können.

[8] **E. N.Černych**. Frühestes Kupfer in den Steppen- und Waldsteppenkulturen Osteuropas. – In: **J. Lichardus** (Hrsg.). Die Kupferzeit..., S. 581–592; vgl. auch **H. Todorova**. Bemerkungen zum frühen Handelsverkehr während des Neolithikums und des Chalkolithikums im westlichen Schwarzmeerraum. – In: **B. Hänsel** (Hrsg.) Handel, Tausch und Verkehr im bronze- und früheisenzeitlichen Südosteuropas (=Südosteuropa-Schriften, 17 =PAS, 11). München-Berlin, 1995, S. 61.

[9] Bes. **E. Pernicka, E. Begemann, F. Schmitt-Strecker, H. Todorova, I. Kuleff**. Prehistoric copper in Bulgaria. Its composition and provenance. – EA, 3, 1997, S. 143–146; siehe hierzu auch den Beitrag von **K. Dimitrov**. Die Metallfunde..., S. 127–158.

[10] **A. Hartmann**. Die Goldsorten des Äneolithikums und der Frühbronzezeit im Donauraum. – StP, 1–2, 1978, S. 182–191; **A. Hartmann**. Prähistorische Goldfunde aus Europa, Bd. II. Berlin (=SAM, 5), 1982, S. 40.

[11] Einen weiteren Beleg für Fernhandel vermutet Lichardus (**J. Lichardus**. Das Gräberfeld von Varna in Rahmen des Totenrituals des Kodžadermen-Gumelnița-Karanovo VI–Komplexes. – In: **J. Lichardus** (Hrsg.). Die Kupferzeit..., S. 186) in Maß- und Gewichtseinheiten.

[12] **H. Todorova**. Bemerkungen zum..., S. 56; **H. Todorova**. Die Spondylus-Problematik heute. – In: **S. Hiller, V. Nikolov** (Hrsg.). Karanovo III. Beiträge zum Neolithikum in Südosteuropa, Bd. III. Salzburg, 2000, S. 415–422. Zum Spondylushandel allgemein: **J. Müller**. Neolithische und chalkolithische Spondylus-Artefakte. Anmerkungen zu Verbreitung, Tauschgebiet und sozialer Funktion. – In: Χρόνος. Beiträge zur prähistorischen Archäologie zwischen Nord- und Südosteuropa. Festschrift für B. Hänsel (=IA–SH, 1). Espelkamp, 1997, S. 91–106 und die dort zitierte Literatur.

[13] Überschuss und unterschiedliche Salzgehalte ziehen auch die besonderen Strömungsverhältnisse im Bosporus nach sich: Salzarmes (und damit leichteres) Oberflächenwasser strömt aus dem Schwarzen Meer in das Marmarameer, während in den unteren Wasserschichten ein salzreicherer und damit schwererer Wasserstrom aus dem Marmarameer in das Schwarze Meer fließt.

[14] Das in den letzten Jahren von Pitman, Ryan und Anderen beschriebene Szenario, wonach das Schwarze Meer am Ende der letzten Eiszeit zunächst ein über 100 m unterhalb des heutigen Meeresniveaus liegender Süßwassersee gewesen sei und erst in Folge eines katastrophalen Bosporusdurchbruches im 6ten Jahrtausend mit dem Marmara Meer wieder in Verbindung trat (z.B. **W. B. F. Ryan, W. C. Pitman III, C. O. Major, K. Shimkus, V. Moskalenko, G. A. Jones, P. Dimitrov, N. Gorür, M. Sakinç, H. Yüce**.**A. J. Bailer, L. D. Reed, L. T. Stayner, P. Brotzu, C. B. Gomes, L. Melluso, L. Morbidelli. V. Morra, E. Ruberti.** An abrupt drowning of the Black Sea shelf. – Marine Geology, 138, 1997, p. 119–126; **R. Ballard, D. Coleman, G. Rosenberg**. Further evidence of abrupt drowning of the Black Sea shelf. – Marine Geology, 170, 2000, p. 253–261), hat zu Recht zahlreiche Einwände von Seiten der Naturwissenschaft (**N. Görür, M. N. Çağatay, O. Emre, B. Alpar, M. Sakınç, Y. İslamoğlu, O. Algan,**

T. Erkal, M. Keçer, R. Akkök, G. Karlık. Is the abrupt drowning of the Black Sea shelf at 7150 yr BP a myth? – Marine Geology, 176, 2001, p. 65–73; **A. E. Aksu, R. N. Hiscott, P. J. Mudie, A. Rochon, M. A. Kaminski, T. Abrajano, D. Yaşar**. Persistent Holocene outflow from the Black Sea to the Mediterranean contradicts Noah's Flood Hypothesis. – GSA Today, 12, 5, 2002, p. 4–10), aber auch der Archäologen (**P. Jablonka**. The link between the Black Sea and the Mediterranien since the end of the last ice age: Archaeology and Geology. – In: **G. Wagner, E. Pernicka, H.-P. Uerpmann** (eds.). Troia and the Troad: scientific approaches. Berlin–Heidelberg, 2003, p. 79f.; **B. Govedarica**. On the oscillations of the Black Sea level in the Holocene Period from an archaeological viewpoint. – In: **G. Wagner, E. Pernicka, H.-P. Uerpmann** (eds.). Troia and the..., p. 95–104; siehe hierzu auch **O. Höckmann**. Zu früher Seefahrt in den Meerengen. – Studia Troica, 13, 2003, S. 133–160) erfahren und kann weitgehend als widerlegt gelten.

[15] Bedingungen für die Schifffahrt im Schwarzen Meer siehe z.B. **Lord Comissioners of the Admirality** (ed.). The Black Sea Pilot. 1920, p. 10–19.

[16] **O.-H. Frey**. Varna – ein Umschlagplatz...; siehe hierzu auch **O. Höckmann**. Zur früher Seefahrt..., S. 139 u. Abb. 4.

[17] Zuletzt **S. Stanimirov**. Underwater archaeological sites from ancient and middle ages along Bulgarian Black Sea Coast – classification. – ArB, VII_1, 2003, p. 1–34; für die Besiedlung der Bucht von Varna: **H. Todorova, G. Tončeva**. Die äneolithische Pfahlbausiedlung bei Ezerovo im Varnasee. – Germania, 53, 1975, S. 30–46; **A. Margos**. Les sites lacustres dans les lacs de Varna et la nécropole de Varna. – StP, 1–2, 1978, p. 146–148.

[18] **C. A. Burney**. Northern Anatolia before classical times. –Anatolian Studies, 6, 1956, p. 179–203; **G. D. Summers**. The Chalcolithic Period in Central Anatolia. – In: **P. Georgieva** (ed.). The fourth millenium B.C. Sofia, 1993, p. 29–48.

[19] **U. B. Alkım, H. Alkım, Ö. Bilgi**. İkiztepe I: Birinci ve İkinci Dönem Kazıları: The First and Second Seasons' Excavations (1974–1975). Ankara, 1988; **U. B. Alkım, H. Alkım, Ö. Bilgi**. İkiztepe II: Üçüncü, Dördüncü, Beşinci, Altıncı, Yedinci Dönem Kazıları (1976–1980). Ankara, 2003.

[20] **M. Özdoğan**. Pre-Bronze age sequence of Central Anatolia: an alternative approach. – In: **U. Magen, M. Rashad** (Hrsg.). Vom Halys zum Euphrat: Thomas Beran zu Ehren (=AVO, 7). Münster, 1996, S. 185–202; **G. D. Summers**. The Chalcolithic...: bedingt durch die Umdatierung der von Orthmann (**W. Orthmann**. Die Keramik der Frühen Bronzezeit aus Inneranatolien (=IF, 24). Berlin, 1963) für die FBI-Stufe genannten Funde in das Chalkolithikum.

[21] **H. Parzinger**. Studien zur Chronologie und Kulturgeschichte der Jungstein-, Kupfer- und Frühbronzezeit zwischen Karpaten und Mittlerem Taurus (Römisch Germanische Forschungen, 52). Mainz am Rhein, 1993, S. 236f.; **H. Parzinger**. Zur Zeitstellung der Büyükkaya-Ware: Bemerkungen zur vorbronzezeitlichen Kulturabfolge Zentralanatoliens. – Anatolica, XIX, 1993, S. 211–229.

[22] **L. Thissen**. New insights in Balkan-Anatolian connections in the late chalcolithic: old evidence from the Turkish Black Sea littoral. – Anatolian Studies, XLIII, 1993, p. 207–237, vor allem 217f. Bereits R. F. Hoddinott (**R. F. Hoddinott**. From the chalcolithic to the Early Bronze Age in West and North Pontic Lands. – AA–JKF, 10 (In Memoriam Prof. Dr. U. Bahadir Alkim), 1986, p. 128) hatte auf Parallelen in der Idolatrie zwischen der nordanatolischen Küstenregion (Dündartepe und İkiztepe) und dem west- und nordpontischen Raum hingewiesen, allerdings ohne dies näher auszuführen. Zu weitreichenderen Schlüssen bezüglich der zeitlichen Tiefe der Funde des İkiztepe kam U.-D. Schoop (**U.-D. Schoop**. Das anatolische Chalkolithikum – eine chronologische Untersuchung zur vorbronzezeitlichen Kultursequenz im nördlichen Zentralanatolien und den angrenzenden Gebieten (=Urgeschichtliche Studien, 1). Remshalden, 2005) im Rahmen seiner Aufarbeitung des Chalkolithikums in Anatolien.

[23] Angaben zu einigen Bestattungen finden sich bei **U. B. Alkım, H. Alkım, Ö. Bilgi**. İkiztepe I..., p. 261–275 (anthropologische Angaben zu den Bestattungen 1–21) sowie **U. B. Alkım, H. Alkım, Ö. Bilgi**. İkiztepe II..., p. 187–194 (anthropologische Bestimmungen zu den Bestattungen 22–145 mit knapper Angabe des zugehörigen Inventares) und **Ö. Bilgi**. İkiztepe Mezarlık kazıları ve ölü gömme gelenekleri. 2000–2002

Dönemleri. – Anadolu Araştırmaları, XVII, 1, 2004, s. 25–40. Metallinventar und einige wenige Gefäße sowie einige (unkommentierte) Pläne finden sich bei **Ö. Bilgi**. Metal objects from İkiztepe–Turkey. – BAVA, 6, 1984, p. 31–96 (**Ö. Bilgi**. Metal objects I); **Ö. Bilgi**. Metal objects from İkiztepe–Turkey. – BAVA, 9–10, 1990, p. 119–219 (**Ö. Bilgi**. Metal objects II). Erkenntnisgewinn zu den Gräbern ist mühsam.

[24] **Ö. Bilgi**. Metal objects I, fig. 3–6; **Ö. Bilgi**. Metal objects II, fig.1–2).

[25] **Ö. Bilgi**. Metal objects I; **Ö. Bilgi**. Metal objects II; **Ö. Bilgi**. Metallurgists of the Central Black Sea Region: A new perspective on the question of the indo-europeans' original homeland. İstanbul, 2001, p. 23.

[26]**U. B. Alkım**. Einige charakteristische Metallfunde von İkiztepe. – In: **R. M. Boehmer, H. Hauptmann** (Hrsg.). Beiträge zur Altertumskunde Kleinasiens. Festschrift für Kurt Bittel. Mainz am Rhein, 1983, S. 42; **H. Özbal, N. Pehlivan, B. Earl, B. Gedik**. Metallurgy at İkiztepe. – In: **Ü. Yalcin** (Hrg.). Anatolian Metal II (=Der Anschnitt, 15). Bohum, 2002, p. 43f.

[27] **E. Pernicka**. Gewinnung und Verbreitung der Metalle in prähistorischer Zeit. – JRGZM, 37, 1990, S. 48 betrachtet Arsenwerte von bis zu 2% als nicht absichtlich herbeigeführt, da diese die Materialeigenschaften nur unwesentlich beeinflussen. Im Gegensatz dazu bspw. **U. Esin**. Die chalkolithischen, Arsen-kupferzeitlichen und frühbronzezeitlichen Kulturen Anatoliens anhand der Metallanalysen. – In: **J. Guilaine** (ed.). El origen de la Metalurgia. Mexico, 1981, S. 109, die bereits 1% Arsenanteil als Arsenkupferlegierung bezeichnet (s.a. **P. Budd, B. S. Ottaway**. Eneolithic arsenical copper: Chance or Choice? – In: **P. Petrović, S. Đurđekanović, B. Jovanović** (eds.). Ancient Mining and Metallurgy in Southeast Europe. Belgrad, 1995, p. 95–102). Arsen senkt den Schmelzpunkt und verleiht dem Material durch anschließendes Kaltschmieden einen höheren Härtegrad. Sehr hohe Arsenanteile machen das Metall jedoch spröde und sind für die Herstellung von Geräten ungeeignet, verleihen den Objekten allerdings einen silbrigen Glanz; für Prestige oder Schmuckobjekte vermutlich ausschlaggebend. Die Legierung des Kupfers erfolgte entweder durch Zugabe arsenhaltiger Substanzen oder – was eher anzunehmen ist – durch eine gezielte Auswahl arsenreicher Kupfererze. Im Zusammenhang mit stark arsenhaltigen Bronzen hat Esin den bereits andernorts verwandten Begriff "Arsen-Kupferzeit" in die anatolische Vorgeschichte eingeführt. Siehe hierzu auch **I. R. Selimchanow**. Zur Frage einer Kupfer-Arsen-Zeit. – Germania, 55, 1977, S. 1–6; **E. Schubert**. Zur Frage der Arsenlegierungen in der Kupfer- und Frühbronzezeit Südosteuropas. – In: **H. Lorenz** (Hrsg.). Studien zur Bronzezeit. Festschrift für Wilhelm Albert von Brunn (Gebundene Ausgabe). Mainz am Rhein, 1981, S. 447–459.

Aus den Veröffentlichungen von Bilgi (**Ö. Bilgi**. Metal objects I; **Ö. Bilgi**. Metal objects I) liegen zu 82 Objekten aus den Gräbern von İkiztepe Metallanalysen vor; die publizierten Messergebnisse, geben jedoch in einigen Fällen Anlass zu Zweifeln an der Richtigkeit, da die aufaddierten Prozentwerte z.T, erheblich von 100% abweichen (z.B. Obj. 7 (Grab 56); Obj. 9 (Grab 217); Obj. 10 u. 17 (Grab 41); Obj. 33 (Grab 230); Obj. 79 (Grab 59).

Nach den Messungen besitzen 10% der Objekte einen Arsenanteil von weniger als 2%, wohingegen der Arsengehalt bei etwa 70% der Artefakte zwischen 2 und 7% liegt. Ein Zehntel verfügt über einen Arsengehalt zwischen 9 und 12%. Nach **H. Özbal, N. Pehlivan, B. Earl, B. Gedik**. Metallurgy at İkiztepe..., p. 42, fig. 3 ergibt sich auf größeren Datenbasis von 359 Artefakten aus İkiztepe eine weitgehend ähnliche Verteilung. Auch dort besitzen rund 70% Arsenwerte zwischen 2 und 7%, während allerdings der Anteil der Artefakte mit Werten über 9% Arsenanteil weniger als 5% beträgt, und Artefakte mit weniger als 2% Arsenanteil weniger als 20% des Fundmaterials stellen.

[28] **H. Özbal, N. Pehlivan, B. Earl, B. Gedik**. Metallurgy at İkiztepe…, p. 46.

[29] **F. Begemann, E. Pernicka, S. Schmitt-Strecker**. Metal finds from Ilıpınar and the advent of arsenical copper. – Anatolica, XX, 1994, p. 203–219.

[30] **J. J. Roodenberg, W. Schier**. Radiocarbon Determinations. – In: **J. J. Roodenberg, L. C. Thissen** (eds.). The Ilıpınar Excavations, II. Leiden, 2001, p. 267 – GrN-16151: 5060±110BP (1 s cal. BC 3970–3710); GrN-17049: 4850±60BP (1 s cal. BC 3710–3530).

[31] Vgl. **Ö. Bilgi**. Metal objects I, fig. 14: 66–68 sowie **Ö. Bilgi**. Metal objects II, fig. 15–16: 223–228 mit **F. Begemann, E. Pernicka, S. Schmitt-Strecker**. Metal finds from..., p. 215, № 1390, 1389, 1382.

[32] Vgl. z.B. in Bulgarien (**H. Todorova**. Die kupferzeitlichen Äxte und Beile in Bulgarien (=PBF, IX, 14). München, 1981, S. 30–32) Flachbeile vom Typ Kamenar und Altheim oder für Ungarn (**P. Patay**. Kupferzeitliche Meißel, Beile und Äxte in Ungarn (=PBF, IX, 15). München, 1984, S. 29f.) Flachbeile vom Typ Szakálhát.

[33] Lanzenspitzen sind etwa aus der Kupferzeit Bulgariens vorläufig einzig aus der Nekropole von Varna in zwei Exemplaren bekannt (Grab 43 und Grab 97). Allerdings unterscheiden sich beiden Exemplare von Varna (**H. Todorova**. Die kupferzeitlichen Äxte…, № 201 u. 202) hinsichtlich Blattform und Blattlänge deutlich von den Exemplaren aus İkiztepe (**Ö. Bilgi**. Metal objects I, fig. 7–12; **Ö. Bilgi**. Metal objects II, fig. 3–11).

[34] **E. Pernicka, E. Begemann, F. Schmitt-Strecker, H. Todorova, I. Kuleff**. Prehistoric copper in..., p. 136f.; ähnliche Isotopenverhältnisse und Spurenelemente könnten darauf hindeuten, dass das Rohmaterial der Artefakte aus Ilıpınar und jene aus der "Protobronzezeit" Bulgariens aus einer Lagerstätte stammt.

[35] **I. Vajsov**. Die frühesten Dolche Bulgariens. – Anatolica, XVIII, 1992, S. 61–70; **I. Vajsov**. Die frühesten Metalldolche Südost- und Mitteleuropas. – PZ, 68, 1993, S. 103–145.

[36] **H. Parzinger**. Studien zur..., S. 237; **H. Parzinger**. Zur Zeitstellung..., S. 219. Siehe hierzu auch **O. Höckmann**. Zur früher Seefahrt... Thissen hatte anhand von einigen typologischen Elementen ebenfalls versucht die Beziehungen zwischen der nordanatolischen Schwarzmeerküste und Südosteuropa zu erhellen. Die von ihm (**L. Thissen**. New insights in..., p. 217) genannten Ähnlichkeiten etwa zwischen Metallartefakten aus dem bei Samsun gelegenen Dündartepe (**K. Kökten, N. Özgüç, T. Özgüç**. Türk Tarih Kurumu adına yapılan Samsun bölgesi kazıları hakkında ilk kısa rapor. – BD, IX, 1945, lev. LXVI: 1–3) auf der einen und Varna auf der anderen Seite sind bei näherer Betrachtung jedoch nicht unbedingt stichhaltig, handelt es sich doch um wenig spezifische Formen.

[37] **Ö. Bilgi**. Metal objects I, fig. 18: 266 (Inv. I 81–169); **Ö. Bilgi**. Metal objects II, fig.19: 427 (Inv. I 85–122).

[38] **Ö. Bilgi**. Metal objects I, fig. 18: 267 (Inv. I 81–397).

[39] **Ö. Bilgi**. Metal objects I, fig. 18: 265 (Inv. I 82–189).

[40] **B. Kulaçoğlu**. Tanrılar ve Tanrıçalar. Ankara, 1992, s. 188, № 95.

[41] **J. Yakar**. The later prehistory of Anatolia. The Chalcolithic and Early Bronze Age (=BAR–IS, 268). Oxford, 1985, p. 202, 432, fig. XXVIII: 11; **J. Makkay**. The Tiszaszőlős Treasure (=StA, X). Budapest, 1989, p. 41, fig. 2; entgegen der dortigen Bildunterschrift handelt es sich allerdings bei fig. 2: 2 um das goldene Exemplar aus Kalınkaya, fig. 2: 3 stellt das silberne aus Göller dar, während es sich bei fig. 2: 4 um den Bleianhänger aus İkiztepe Grab 192 handeln dürfte.

[42] **J. Yakar**. The later prehistory of..., p. 202 schreibt hierzu: "*The tomb deposits are rather similar, but simpler in form and quality, to the metal artefacts discovered in the Alaca Höyük graves."*

[43] **W. Rudolph**. A note on Chalcolithic-Early Bronze Age Jewelry from the Burton Y. Berry Collection. – IUAMB, I, 2, 1978, p. 6–21.

[44] **Ö. Bilgi**. Metallurgists of the..., p. 23; zahlreiche Metallgeräte und -artefakte aus İkiztepe (**Ö. Bilgi**. Metal objects I; **Ö. Bilgi**. Metal objects II) stammen aus Siedlungsschichten; **K. Kökten, N. Özgüç, T. Özgüç**. Türk Tarih Kurumu..., s. 361–409 (Metallfunde aus Siedlungsschichten in Dündartepe); **T. Özgüç**. Maşat Höyük Kazıları ve Çevresindeki Araştırmalar. Ankara, 1978, s. 31–36, 89-99; **T. Özgüç**. Çorum Çevresinde Bulunan Eski Tunç Çağı eserleri. – BD, XLIV, 1980, s. 459–474.

[45] **J. Makkay**. Problems concerning Copper Age Chronology in the Carpathian Basin. Copper Age Gold Pendants and Gold discs in Central and Southeast Europe. – Acta Arch. ASH, 28, 1976, p. 251–300; **O.-H. Frey**. Varna – ein Umschlagplatz..., Abb. 5 und die dort zitierte Literatur.

[46] **H. Parzinger**. Hornstaad–Hlinsko–Stollhof. Zur absoluten Datierung eines vor-Baden-zeitlichen Horizontes. – Germania, 70, 2, 1992, S. 241–250.

[47] **J. Maran**. Das Ägäische Chalkolithikum und das erste Silber in Europa. – In: **C. Işık** (Hrsg.). Studien zur Religion und Kultur Kleinasiens und des ägäischen Bereiches. Festschrift für Bakı Öğün zum 75. Geburtstag (=AM–Studien, 39). 2000, S. 179–193; **Κ. Δημακοπούλου (ed.)**. Κοσμήματα της Ελληνικής προϊστορίας. Ο νεολιθικός θησαυρός. Αθήνα, 1998.

[48] Siehe hierzu **J. Maran**. Das Ägäische Chalkolithikum... Den dort genannten Silberfunden aus der ersten Hälfte des 4. Jahrtausends ist noch ein silberner Blechanhänger aus einer Kinderbestattung in Tiszalúc-Sarkad hinzuzufügen (**P. Patay, I. Szathmári**. Über einen seltenen urzeitlichen silbernen Blechanhänger aus dem Karpatenbecken. – CAH, 2001, S. 5–13).

Blei ist bedingt durch seine relativ einfache Gewinnung aus seinen häufigen Erzen Bleiglanz und Cerussit bereits seit dem akeramischen Neolithikum Vorderasiens in Verwendung (**E. Pernicka**. Gewinnung und Verbreitung..., S. 56f.); Pernicka führt weiter aus, dass die scheinbar abnehmende Bleiverwendung im 5. u. 4. Jahrtausend wohl eher auf eine Forschungslücke zurückzuführen ist. Für die Ägäis ist Blei vorläufig zwar erst seit dem 3. Jahrtausend nachgewiesen, dabei handelt es sich aber vermutlich nur um eine Forschungslücke. In Vorderasien kann mit dem 4. vorchristlichen Jahrtausend ein vermehrtes Auftreten entsprechender Bleiobjekte verzeichnet werden. Ein gemeinsames Erscheinen von Blei und Silber nährt indessen den Verdacht, dass die frühesten Silberobjekte aus kupelliertem Silber hergestellt wurden. Direkte Nachweise dafür liefert die an verschiedenen Orten gefundene Bleiglätte, die bei der Kupellation, d.h. der Trennung von Blei und Silber entsteht: Entsprechende Belege siehe **E. Pernicka**. Gewinnung und Verbreitung..., S. 57f. und die dort zitierte Literatur.

[49] Nach **G. A.Wagner, E. Pernicka, T. Seeliger, I. Lorenz, F. Begemann, S. Schmitt-Strecker, C. Eibner, Ö. Öztunalı**. Geochemische und isotopische Charakteristika früher Rohstoffquellen für Kupfer, Blei, Silber und Gold in der Türkei. –Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz, 33/2, 1986, Abb. 1 sind entsprechende Lagerstätten im nördlichen Zentralanatolien belegt, auch wenn der Nachweis für deren Nutzung im 4. Jahrtausend bislang nicht vorliegt.

[50] **J. Makkay**. Problems concerning..., p. 282, fig. 25–28 and p. 284, fig. 29 and 32; **J. Makkay**. The Tiszaszőlős..., pl.10–13.

[51] **Ö. Bilgi**. Metal objects II, fig.16: 241 (Inv. I 84–351).

[52] **H. Todorova, I. Vajsov**. Der kupferzeitliche Schmuck, S. 50–51 u. Taf. 9.

[53] Siehe hierzu **J. L. Huot**. La diffussion des épingles à tête à double enroulement. – Syria, 46, 1969, p. 57–98; **N. Kalicz**. Über die Absolutchronologie der Kupferzeit Ungarns und die Doppelspiralkopfnadeln von Südosteuropa bis zum Nahen Osten. – Antaeus, 25, 2002, S. 377–404; weitere, dort nicht genannte Beispiele aus der Mittleren Bronzezeit aus Demircihüyük-Sarıket: **J. Seeher**. Die Bronzezeitliche Nekropole von Demircihüyük-Sarıket (=Istanbuler Forschungen, 44). Tübingen, 2000, Abb. 63 (Grab 133, a), Abb.66 (Grab 413); für das (anatolische) Chalkolithikum aus Orman-Fidanlığı – **T. Efe** (ed.). The salvage excavations at Orman Fidanlığı – A chalcolithic site in Inland Northwestern Anatolia. İstanbul, 2001 , p. 154, fig. 8: 105–106.

[54] Vgl. **L. Thissen**. New insights in…, p. 231, fig. 4: 1–4, fig. 5: 3 (Dündartepe; siehe auch **W. Orthmann**. Die Keramik der Frühen...., Taf. 65: 14), mit **Ö. Bilgi**. Metal objects II, p. 219, fig. 20: 452, bzw. **Ö. Bilgi**. Metallurgists of the..., p. 98 (İkiztepe). Siehe hierzu auch besonders die Argumentation von Thissen (216f) bezüglich der Unterscheidung zwischen chalkolithischer und frühbronzezeitlicher Weißmalerei (Appendix S. 222–225).

[55] Orthmann 1963, Taf.39,6 (Alaca Höyük) und Taf. 69,5 (Horoztepe); Formvergleiche lassen sich ferner auch mit einem Stück aus Alişar (14–9) anstellen (Orthmann 1963, Taf.8,1).

[56] **H. Parzinger**. Zur Zeitstellung..., Abb. 5: 3–4.

[57] **H. Parzinger**. Zur Zeitstellung..., S. 219 weist auf Ähnlichkeiten mit den Lappenschalen aus Karanovo V/Marica-Zusammenhängen hin.

[58] **L. Thissen**. New insights in…, p. 217–218; siehe hierzu auch **J. Makkay**. Pottery links between Late Neolithic cultures of the NW-Pontic and Anatolia, and the origins of the Hittites. – Anatolica, XIX, 1993, p. 117–128 und die dort zitierte Literatur.

ВАРНА И ИКИЗТЕПЕ – РАЗМИСЛИ ОТНОСНО ДВА АРХЕОЛОГИЧЕСКИ ОБЕКТА НА ЧЕРНО МОРЕ

КЛЕМЕНС ЛИХТЕР (КАРЛСРУЕ)

Разкопаният от Иван Иванов некропол край Варна се различава от останалите известни некрополи на Източните Балкани с богатите дарове, открити в някои гробове. Като възможна причина за богатството на Варна се посочва благоприятното разположение, което превръща района във възлова точка в обмяната на мед, злато и *Spondilus* в периода около средата на V хил. пр.Хр.

В този ред на мисли се поставя въпроса за това дали в района на Черно море има и други археологически обекти, които могат да бъдат свързани с Варна. В статията е разгледан богатия на метални находки селищен комплекс Икизтепе, намиращ се на турския черноморски бряг, на около 50 км северозападно от Самсун, в долината на р. Бафра. Предложената от проучвателите датировка в ранната бронзова епоха е поставена на съменение. Голяма част от пластовете в Икизтепе принадлежат към по-ранен период.

От предварителните публикации може да се реконструира инвентара на някои гробове. Някои метални украшения свидетелстват за контакти с култура Варна. Кръглите антропоморфни амулети са разпространени в районите южно от Черно море и в Северна Централна Анатолия, но изглежда, че там те се появяват през първата половина на IV хил. пр.Хр. Останалите находки от Варна нямат паралели в инвентара от Икизтепе. Съответно и във Варна няма паралели на метални форми, известни от Икизтепе.

Често посочваните в литературата паралели между турското Черноморско крайбрежие и Западното и Северозападно Черноморие се ограничават до сходство на отделни находки. Директен контакт между посочените райони не изглежда вероятен. Значението на Варна и Икизтепе остава ограничено в съответните им райони и вероятно Черно море има ролята на културна граница.

PALYNOLOGICAL DATA OF SUBMERGED PREHISTORIC SETTLEMENTS ALONG THE BULGARIAN BLACK SEA COAST

MARIANA FILIPOVA-MARINOVA (VARNA), ELISSAVETA BOZILOVA (SOFIA)

Introduction

The geographic position of the Black Sea is the reason for its great significance as a zone of contact and interaction, social and cultural influences between Asia and Europe. Human presence and activity started relatively early along the Bulgarian Black Sea coast – as early as the Late Eneolithic[1]. Many ancient coastal settlements, buildings and harbors are at present either on land far from the sea or on the sea bottom, at various depths, often buried under drift and sand and sometimes well preserved. Submerged archaeological sites compared to the sites found on land have the advantage of preserving organic remains, which are of great importance for our knowledge about the life of their inhabitants and about the environment that made the inhabitants choose that area. The palynological ways of tracing early human influence on the natural vegetation are mainly by searching for indicator species, such as apophytic and anthropochorous species[2] and by evaluating changes in the forests, i.e. changes in their composition and in their proportions to non-arboreal vegetation[3].

The objective of this paper is to discuss certain aspects of the vegetation changes along the Bulgarian Black Sea coast during the Holocene on the basis of the interdisciplinary research of two submerged prehistoric settlements (Lake of Varna and harbor of Sozopol) and to link them with environmental factors and human activity, to provide information concerning the response of dinoflagellates to different ecological parameters in order to reconstruct the sea environment in the past and to determine when the investigated sites were isolated from the sea.

Materials and methods

This paper summarises the data from investigations of two cores from the submerged prehistoric settlements from the northern and southern Black sea coastal area (fig. 1). Core-Arsenala was obtained by divers from the southern shore of the Lake of Varna at a water depth of 10–14 m (fig. 2). Core-D was obtained in the harbor of Sozopol at a water depth of 5,0–5,1 m (fig. 3). Divers collected the material for pollen analysis with a core equipment of Dachnowsky type at every 20 cm. The laboratory treatment of samples was performed according to the acetolysis method[4] with slight modification for the removal of the mineral components with sodium pyrophosphate

Fig. 1. Location of the sites investigated: 1 – Lake of Varna (Arsenala); 2 – harbor of Sozopol

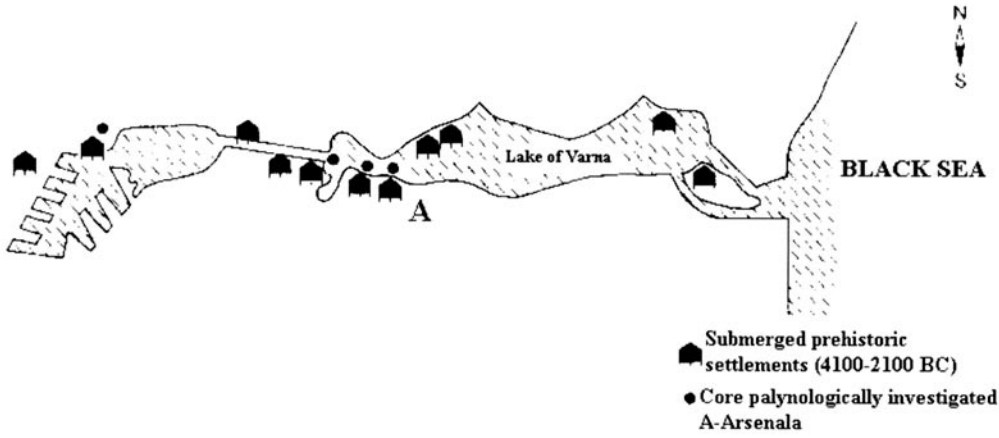

Fig. 2. Location of the prehistoric settlements in the Lake of Varna

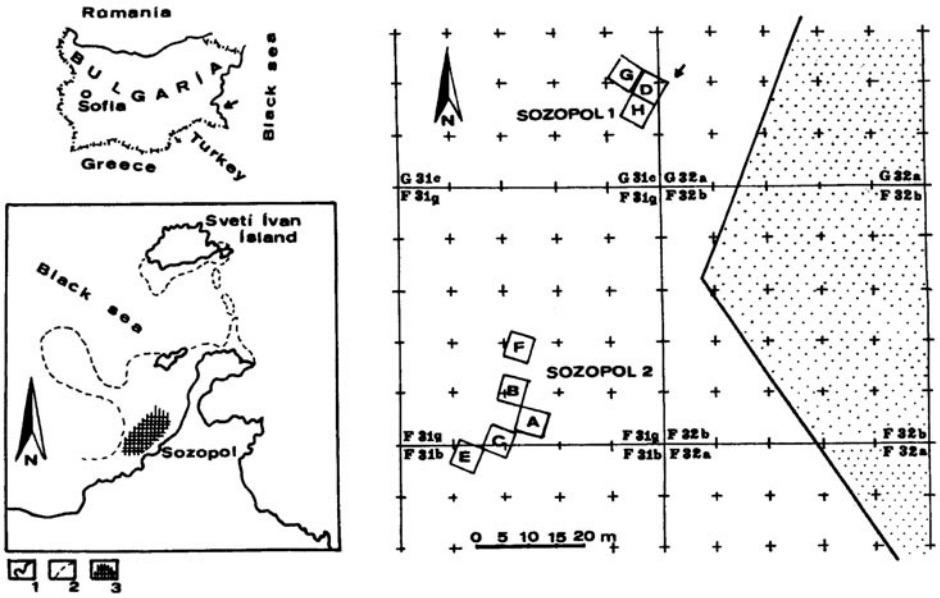

Fig. 3. Location of the coring site ("D") and principal changes in the coastline around Sozopol: 1 – present day; 2 – Eneolithic and Bronze Age; 3 – location of the Eneolithic and the Early Bronze Age settlement

and hydrofluoric acid[5]. Two pollen diagrams have been constructed based on a pollen sum (PS) of arboreal (AP) and non-arboreal (NAP) taxa. Excluded from the PS are pollen of aquatics, spores of *Bryophyta* and *Pteridophyta,* dinoflagellates and acritarchs. Statistical processing of the data and their graphic presentation were done with *TILIA* and *TILIA.GRAPH* software programs[6]. The diagram from the Lake of Varna (Core-Arsenala) is divided into six pollen assemblage zones: *PAZ* V-1…*PAZ* V-6 chronologically bound by 4 radiocarbon dates (fig. 4). The diagram from the harbor of Sozopol (Core-D) is divided into two pollen assemblage zones: *PAZ* Sz-1 and *PAZ* Sz-2 (fig. 5). Data from pollen and dinoflagellate analyses are compared with the data from dendrochronology, archaeology and 14C dating.

The submerged prehistoric settlements in the Lake of Varna

Study area. The Lake of Varna is the largest coastal lake in the Northern Bulgaria. It is located westwards from the port of Varna and in practice comprises two lakes connected with the sea by a channel (fig. 2). It occupies a territory of 17,5 km^3 with an average depth of 9,5 m. The lake lies in the valley of a former river and results from its sinking in Pleistocene time. Following the accumulation of a narrow strip of sand, the bay estuary was separated as a firth from the sea. Later, the firth became a lake and

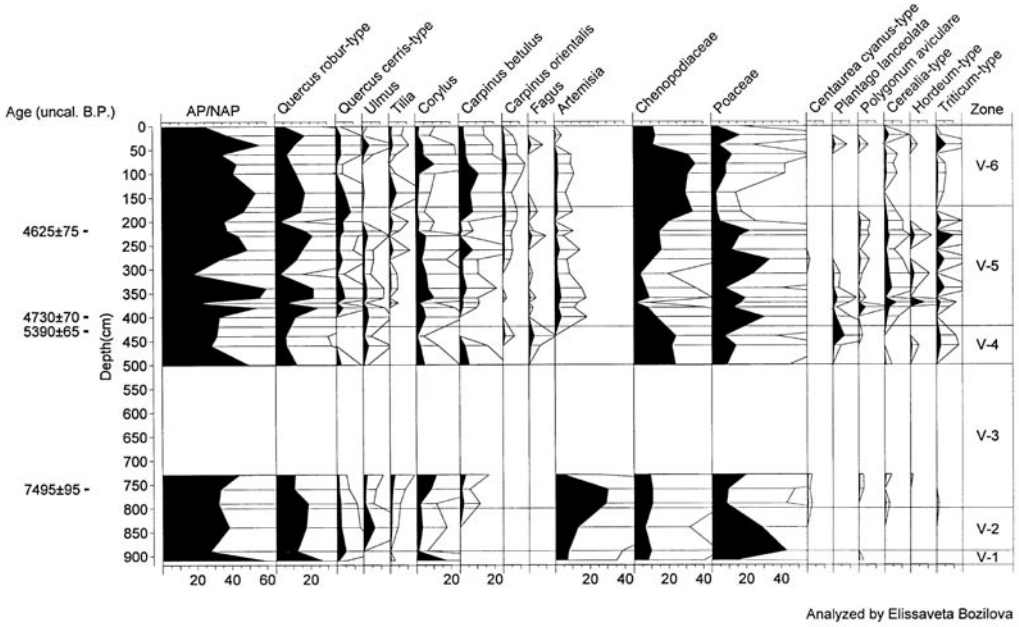

Fig. 4. Simplified percentage pollen diagram of Core-Arsenala (Varna Lake, NE Bulgaria)

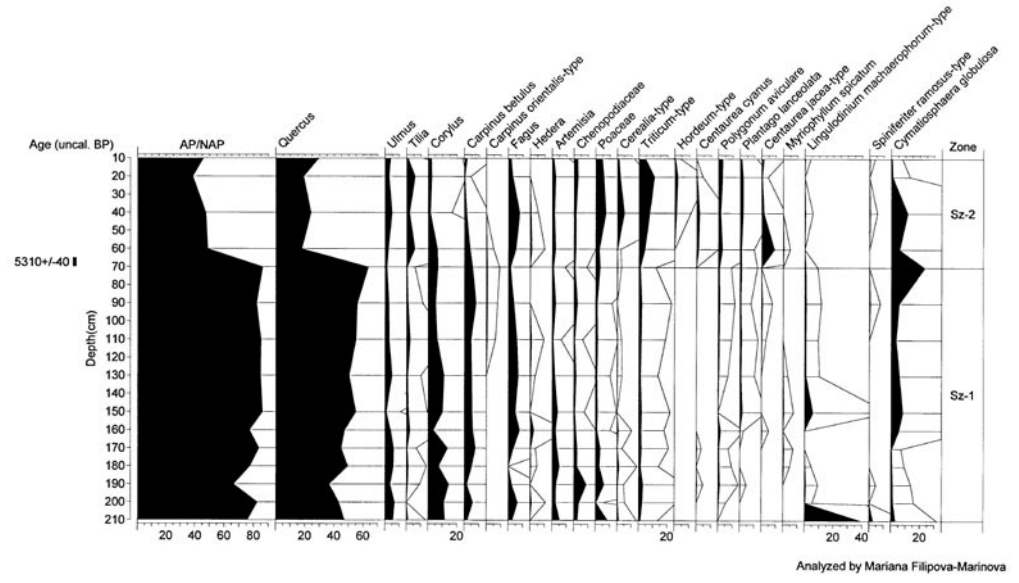

Fig. 5. Simplified percentage pollen diagram of Core "D" (harbor of Sozopol, SE Bulgaria)

the deposition of clay started[7]. At the beginning of 20th century both lakes were linked together and a channel to the sea was also dug. Most of the surroundings have been turned into arable land or industrial areas in the place of the former mixed oak forests. Only in isolated parts there are fragments of deciduous forests of *Quercus, Carpinus betulus, Tilia* and *Acer*, which can be found today. The Lake of Varna provides good possibilities for palynological investigations. In 1975, the first results were published[8] and palaeoethnobotanical finds have been determined from the submerged settlement Ezerovo[9]. During the last 20 years remains from more than 10 so called "lake dwellings" have been found[10] (fig. 2). The age of these dwellings is considered as Late Eneolithic and Early Bronze Age.

The submerged settlement Arsenala was discovered because of dredging work. The length of the settlement is 350 m in east west direction. The cultural layer varies in thickness and is found in the sediments at the lower part of the piles, which still have bark attached. The problem for the archaeologists is whether these settlements in the lake were constructed in the water or on the shore and later flooded because of the rise in water level. The first results from the joint palynological and archaeological research at this site[11] revealed interesting facts about the palaeoecological conditions in the area of the lake and the economy of the native population. New data was added from the dendrochronological measurements of about 300 well-preserved wooden piles from this dwelling[12].

Vegetation history and human impact. The pollen diagram spans the last 9000 years [13] (fig. 4). In terms of the archaeological periods, the lowermost pollen spectra (*PAZ* V-1; *PAZ* V-2) coincide with the Late Neolithic. The general amelioration of the climate in Boreal time gradually caused the replacement of the xerophilous herb communities by trees, predominantly *Corylus, Quercus, Ulmus* and *Tilia.* In Atlantic, relatively stable oak forest was established around the lake with *Carpinus betulus, Tilia, Ulmus* and *Fraxinus.*

The natural tree cover was subjected to intensive exploitation from the Late Eneolithic (4100–3850 B.C.) (*PAZ* V-4) onwards. In the investigated core, the first part of the cultural layer appears from 430 to 500 cm and has been dated to 5390±65 B.P. (4331–4111(4221) cal. BC) (Late Eneolithic). Pollen of *Triticum* was found at this level. The beginning of the remainder of the cultural layer (200–400 cm) was dated to 4730±70 B.P. (3635–3496 (3504) cal. BC) (Early Bronze Age). In the pollen diagram, the Bronze Age corresponds to the upper part of the *PAZ* V-4 and the whole *PAZ* V-5. The pollen record is characterized by a threefold decrease in trees, particularly of *Quercus,* and the distinctive presence of *Cerealia* pollen together with that of anthropophytes such as *Plantago lanceolata, Polygonum aviculare, Rumex* and *Centaurea.* The palaeoethnobotanical finds from the cultural layer (Early Bronze Age) of the nearby submerged settlements Ezerovo[14] are rich in charred grains of *Triticum monococcum, Triticum dicoccum* and *Hordeum vulgare,* seeds of *Lens* sp. and *Polygonum* sp., charred wood of *Quercus,*

Acer, Alnus and *Ulmus*. The great number of twigs in which the last tree ring is complete indicates that their collection was made at the end of the summer season and suggests that they were probably used for leaf fodder.

The dendrochronological analysis of the wooden oak piles showed the presence of two series[15]. The age of the first series is 4510±60 B.P. (3180 cal. BC) and that of the second is 4910±80 B.P. (3700 cal. BC). These results correlate rather well with the radiocarbon measurements of the sediment samples from the cultural layer and confirm the age proposed by the archaeologists. The current opinion prevailing among scientists is that the submerged prehistoric settlements were constructed in the peripheral parts of the lake, which were periodically flooded. The lake level had been rather low and, therefore, favourable for such type of construction. The temporary abandonment of the settlements had caused a partial restoration of the forest vegetation in the area around the lake. Later on, during the Middle Bronze Age (2550–2200 cal. BC) the number of settlements started to decrease gradually and their activity declined. These changes were provoked by a quick rise in the lake level because of the general rise in the level of the Black Sea by 3–4 m during the maximum of the Holocene transgression[16].

At the beginning of the Subatlantic (*PAZ* V-6) the forest regenerated for a short period but, later on, as a result of deforestation and soil erosion, the herbaceous vegetation re-advanced. The last fragments of the oak forests were almost destroyed and, on fallow land, halophilous and xerophilous herb communities appeared. This final stage in the vegetation development is marked in the diagram by a rise in the percentages of Chenopodiaceae, Asteraceae and Brassicaceae pollen.

The submerged prehistoric settlements in the harbour of Sozopol

Study area. The town of Sozopol is situated on the Southern Bulgarian Black Sea coast. The climate is transitional Mediterranean. The mean annual precipitation is estimated to be about 500 to 600 mm with most of rainfall during the autumn-winter seasons. The mean January temperature is 2–3°C and the mean July temperature is 22° C. According to some authors[17] near the Black Sea coast forests with some Mediterranean elements such as *Carpinus orientalis* Mill., *Phyllirea latifolia* L. and *Quercus pubescens* Willd. are distributed. In addition oak forests of *Quercus cerris* L., *Quercus frainetto* Ten. and *Quercus polycarpa* Schur., and forests of *Carpinus betulus* L. occur on lowland sites and hills and in the Strandza Mts. Forests of *Fagus orientalis* Lipsky with an undergrowth of evergreen shrubs (*Rhododendron ponticum* L., *Ilex aquifolium* L., *Daphne pontica* L.) are distributed along the more humid ravines in the Strandza Mountains. Riverine forests that are periodically overflooded are distributed along the rivers and lakes. They are dominated by *Fraxinus oxycarpa* Willd., *Ulmus minor* Mill., *Quercus pedunculiflora* C. Koch and lianas *Hedera helix* L., *Periploca graeca* L., *Smilax excelsa* L., *Vitis vinifera* L.

The history of the submerged prehistoric settlement in the harbor of Sozopol is well documented by extensive archaeological and historical data[18]. Archaeological excavations were carried out between 1990 and 1993 in the harbor of Sozopol.The study area included two zones of investigation: Sozopol 1 and Sozopol 2. Eight squares, 5 by 5 m in size, were excavated in these zones. Three of the squares contained only Early Bronze Age material (A, C, E); two contained Late Eneolithic material and under a hiatus Early Bronze Age material (B and F); and three contained only Late Eneolithic material (D, G, H) (fig. 3). A core from the square D has been palynologically investigated.

Vegetation history and human impact. The results of the pollen analytical investigations of the sediments have provided the possibility to trace in detail the changes of vegetation and the human impact in the area under study. The pollen diagram reflects the history of vegetation of a large area of the Southern Black Sea coast (fig. 5). Looking for criteria to establish the age of the sediments, because of lack of radiocarbon dating, archaeological data have been taken into consideration. A series of radiocarbon dates of oak piles from the submerged prehistoric settlement of Sozopol between 5595±100 and 5475±50 B.P. (4840–4370 cal. BC)[19], and 5300±45 and 5310±40 B.P. (4146–4141 cal. BC)[20] are in conformity with the radiocarbon chronology for Bulgarian prehistory.

The pollen diagram features the climatic optimum of the Holocene – Late Atlantic (7000–5000 B.P.). In terms of archaeological chronology, this period coincides with the Late Eneolithic (4500–4100 cal. BC) (6500–6100 B.P.) and the Final Eneolithic (4100–3850 cal. BC) (6100–5850 B.P.)[21].

During the Late Eneolithic (*PAZ* Sz-1) the high temperature and humidity were favourable for the wide spreading of relatively stable oak forests. Several species of oak, mainly *Quercus cerris, Quercus frainetto* and *Quercus robur* had probably composed the mixed oak communities. *Carpinus betulus*, *Ulmus* and *Tilia* had considerable participation there. Having in mind, the peculiarities in the production and distribution of pollen of *Fraxinus excelsior* and *Acer* the low percentage values with which they are presented in the pollen record indicate its considerable presence in the mixed oak forests[22]. The spreading of *Carpinus betulus* found as a mixture in the mixed oak forests is characteristic and probably towards the end of the Atlantic, it formed limited detached communities along the northern slopes at higher elevations. The increase of the spreading of the hornbeam during the Late Atlantic and the beginning of the Subboreal is a characteristic feature not only for the Southern Black Sea coast, but for the Northern coast as well. The maximum increase of hornbeam is dated in the pollen diagram of the Lake of Arkutino at 5770±105 B.P. (4610 cal. BC)[23] and of the Lake of Shabla-Ezeretz at 5650±100 B.P. (4470 cal. BC)[24]. A considerable increase of hornbeam during the Late Atlantic was established also for the area of the Lake of Varna. A certain decrease of *Quercus* and a significant increase of *Carpinus betulus* is typical of the Subboreal in the area of the Lake of Srebărna[25] and of the Lake of Mangalia[26]. The development of a

hornbeam belt at the beginning of the Subboreal is also typical of the mountains of Stara Planina and Sredna Gora[27] and of the Rila Mountains[28].

The beech forests, most probably of *Fagus orientalis* were widespread along the more humid ravines in this area during the Late Atlantic. The spreading of *Fagus* into deciduous oak forests in the Southern coast is dated along the Veleka River at 8355±75 B.P. (7430 cal. BC)[29] and in the area of the Lake of Arkutino at 6140±100 B.P.(5060 cal. BC)[30] while in the Northern coast the spreading of *Fagus* started later and its maximum distribution was during the Subatlantic (from 3070±100 B.P. (1320 cal. BC))[31]. Because of these data, we may conclude that *Fagus* had probably survived in some refugia in the southern part of the coast, especially in the Standza Mts. during the Last Glaciation and migrated to the north after the amelioration of the climate at the beginning of the Holocene.

Corylus could be found in the oak forests. The increase of the pollen of *Corylus* coincides with the decrease of *Quercus* and to a less extent of *Ulmus* and could be connected with the clearance of the previous dense deciduous forests by cutting branches of elm for feeding the cattle and due to the use of oak trunks for the construction of dwellings and for firewood. It should also be noted that the deforestation of the area might have caused an increase of sub-mediterranean woody taxa such as *Carpinus orientalis*.

The herbaceous communities in the investigated area were of various compositions although their participation is low. The xerophytic communities dominated by different species of *Artemisia*, Chenopodiaceae and Poaceae occupied areas along the coast. Many species of Asteraceae, *Achillea* and Cichoriaceae, Caryophyllaceae and Apiaceae formed the composition of those communities as well. The presence of the pollen of freshwater aquatic species such as *Myryophillum spicatum, Myriophyllum verticillatum* and *Potamogeton* together with eurihalinous marine dinoflagellates *Lingulodinium machaerophorum* type and acritarchs *Cymatiosphaera globulosa* shows the freshwater-brackish environment during the establishment of the settlement (*PAZ* Sz-1). That coincides with the presence of the epiphytic freshwater/brackish assemblages of diatoms[32]. According to the sonar and bathometric scanning of the ancient bed of the Patovska River, which is now submerged in the Bay of Sozopol the investigated settlement was probably constructed on marshy periodically flooded terrains on the terraces along the river valley adjacent to the sea. That made the inhabitants use oak piles for reinforcement of the ground.

During the final stage of the Late Eneolithic (*PAZ* Sz-2), however, the natural tree cover was subject to intensive usage. The pollen record is characterised by a decrease of trees, particularly of *Quercus*, and by the distinctive presence of certain pollen types called anthropogenic indicators, as they provide palynological hints of human interference[33]. The presence of the s.c. primary anthropogenic indicators such as *Triticum* and *Hordeum* which are cultivated in fields in order to harvest them as crops indicates human impact and their abundance is evidence of the extent of this human impact. Apart from the primary anthropogenic indicators already mentioned, a number of other

species tracing different human activities (so called secondary anthropogenic indicators) were determined. They comprise weeds, ruderals and components of meadows and pastures such as *Plantago lanceolata, Polygonum aviculare*, *Centaurea cyanus, Urtica, Sanguisorba minor, Rumex, Papaver* and show positive response to any form of human impact[34].

Among the above-mentioned anthropogenic indicators, *Triticum* pollen seems to be the most reliable for tracing a human settlement, which involves arable activity. The palaeoethnobotanical finds from the cultural layers from the Eneolithic show that along the Black Sea coast wheat (*Triticum monococcum, Triticum dicoccum*, *Triticum aestivum)* and barley (*Hordeum vulgare*) can be considered as main cultivated plants[35]. Significant presence of cereals in the Late Eneolithic cultural layer in the Lake of Varna is also stated[36]. *Plantago lanceolata* turned out to be the most reliable secondary anthropogenic indicator, because it is able to spread easily in soils affected by men in various ways.

The considerable amount of the cereals in the pollen diagram (especially in the Final Eneolithic) shows a well developed arable activity and coincides with the archaeological finds – vessels, tools for agriculture[37] and with the osteological material[38]. This can be correlated to the bloom of the development of agriculture and culture, characteristic for the whole Bulgaria. The presence only of marine dinoflagellate cysts of *Lingodinium machaerophorum* type and acritarchs *Cymatiosphaera globulosa* coincides with the domination of the planctonic mesohalobous species of diatoms[39] and to the replacement of clay sediments by more terrigenous ones. Most probably at that time the Black Sea influenced the survey area due to the Black Sea Post-Eneolithic Transgression[40].

Conclusions

The palaeoecological conditions were favourable for the establishment of settlements along the Bulgarian Black Sea coast during the Late Eneolithic and the Early Bronze Age. Mixed oak forests were distributed in the area during the establishment of the settlements. They were constructed on marshy periodically flooded terrain on the shore of the lakes and along the river valleys adjacent to the sea. Inhabitants used oak piles for reinforcement of the ground.

The decrease of arboreals and the considerable presence of the anthropogenic elements testify for well-developed agriculture and stockbreeding during the Late Eneolithic and the Early Bronze Age.

Settlements of Late Eneolithic age at the coast were flooded during the Black Sea Post-Eneolithic Transgression. Human activity was resumed in those places during the Early Bronze Age. A hiatus of 100–800 years between the Late Eneolithic and the Early Bronze Age settlements are well distinguished in the cores investigated.

Acknowledgments

It is our pleasure to dedicate this paper to Ivan Ivanov's memory. The authors are greatly indebted to Christina Angelova (Center of Underwater Archaeology, Sozopol), to late Prof. Dr. Michael Lazarov (Varna Free University) for the possibility to investigate this material and to Prof. Dr. M. Geyh (Niedersäshsisches Landesamt für Bodenforschung, Hannover, Germany) for the radiocarbon dating.

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ПАЛИНОЛОГИЧНИ ДАННИ ОТ ПОТЪНАЛИ ПРАИСТОРИЧЕСКИ СЕЛИЩА ПО БЪЛГАРСКОТО ЧЕРНОМОРСКО КРАЙБРЕЖИЕ

МАРИАНА ФИЛИПОВА-МАРИНОВА (ВАРНА),
ЕЛИСАВЕТА БОЖИЛОВА (СОФИЯ)

Представени са резултатите от поленовия анализ и анализа на динофлагелатните цисти на два сондажа от Северното и Южното българско черноморско крайбрежие: сондаж "Арсенала", взет от южния бряг на Варненското езеро и сондаж "D", взет от квадрат "D" на потъналото праисторическо селище в пристанището на Созопол.

Отделени са общо осем локални поленови комплексни зони въз основа на вариациите в съотношението между дървесните и тревистите таксони и антропогенните индикатори. Палинологичните данни предоставят информация за растителната динамика и промените в палеоекологичните условия по българското черноморско крайбрежие от края на климатичния оптимум на холоцена (късен атлантик) и суббореал.

Значително човешко влияние върху естествената растителност в района е установено през късния енеолит и ранната бронзова епоха. Данните от анализа на динофлагелатните цисти свидетелстват за издигане на морското ниво и изоставяне на праисторическите крайбрежни селища през преходния период в резултат на Новочерноморската (постенеолитна) трансгресия.

SOME OBSERVATIONS ABOUT THE CHIPPED STONE ARTIFACTS FROM EARLY BRONZE AGE II – SETTLEMENT AT KÜLLÜOBA, EŞKISEHIR REGION, NORTHWESTERN ANATOLIA

IVAN GATSOV (SOFIA), PETRANKA NEDELCHEVA (SOFIA)

In this paper some remarks about the Early Bronze Age technology from the territory of Northwestern Turkey are presented. The stone material derived from the settlement of Küllüoba, Yenikent, Eşkisehir region and has been related to the Bronze Age period – EBII[1]. The sample consists of cortical and crested specimens, debris – especially flakefragments, flakes, blades and retouched tools.The former display mainly retouched blades and blade specimens with denticulated retouch. On the base of some quantity of chipped stone artefacts from this settlement an attempt to draw some of the main technological features has been made.

In frame of the chipped stone collection a minimal number of local raw material samples have been distinguished. "One of these varieties was probably more often selected for blade receiving because of its relatively good knapping quality"[2].

Simultaneously a small number of cortical specimens such as flakes and fewer blades with trace of cortex have been noticed. The later have been found together with two side crested blades and blades with crested in the middle as well.

Additionally some quantity of unretouched blades has been registered (fig.1: 1, 2; fig.2: 5; fig.3: 2–4, 6). Among these artefacts the entire specimen'spresent lateral cortex, straight or very slightly convex profiles. It is worth to notice that any visible traces of usage have been observed. These blades are without retouch and without silica gloss and polishing as well and were connected with the same variety of raw material. As a whole they presented completely similar quantitative and qualitative attributes.

Among these blades some specimens match to each other – they come from the same core and from the same stage of core reduction as well. These blades possessed one lateral edge covered by cortex, and it is very likely that it was left intentionally (fig.1: 4).

Having in mind the above mentioned lack of traces on the entire blade specimens and the fact the almost all fragments present visible traces if use it should be concluded that blades were used after their breaking, but not before. In other words the difference between whole blades and fragments as well can be seen in the presence of silica gloss and polishing on the blade fragments. Additionally most of the blade fragments present continuous denticulated retouches as well (fig.1: 3, 5, 6; fig.2: 2–4, 6; fig.3: 5, 7). In some cases single blade items were shaped as blade truncations and blade end-scrapers. (fig.1: 7; fig.2: 1; fig.3: 1).

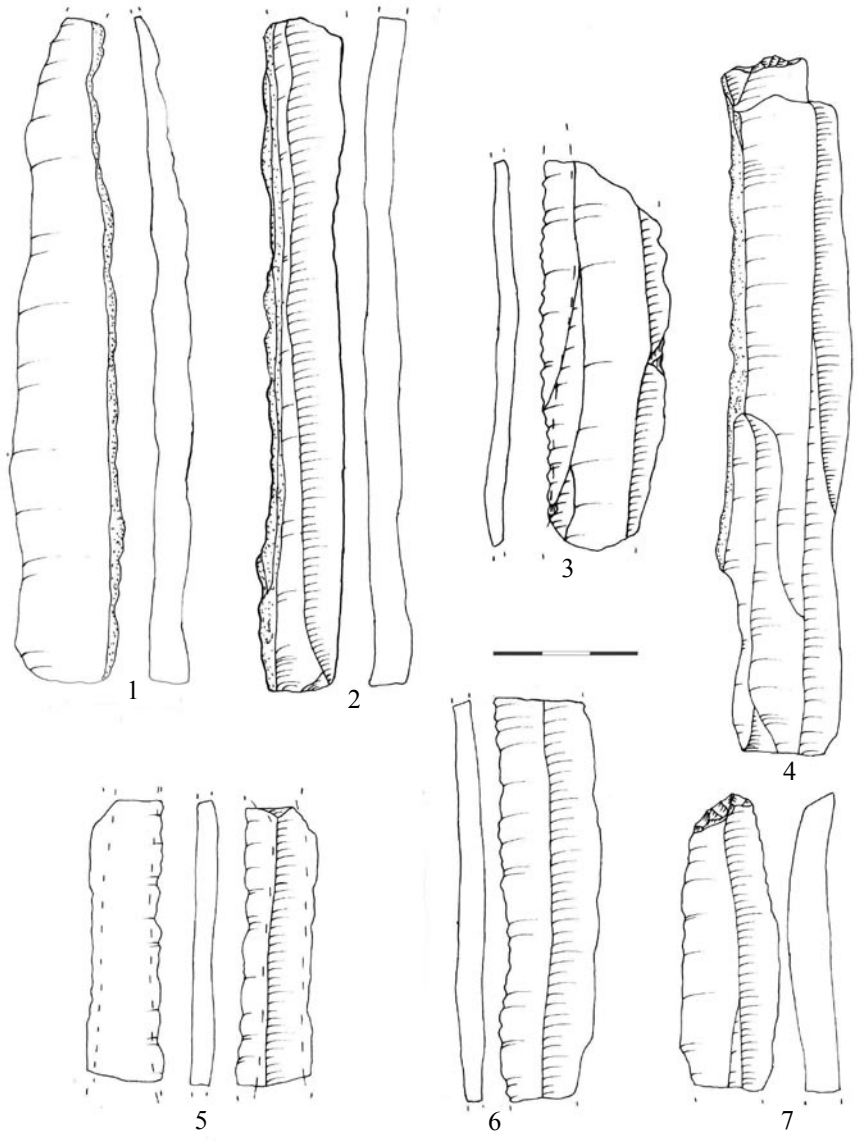

Fig. 1. Artifacts from Küllüoba: 1, 2 – blades; 3, 5, 6 – blades with denticulated retouch; 4 – truncation; 7 – end-scraper on blade

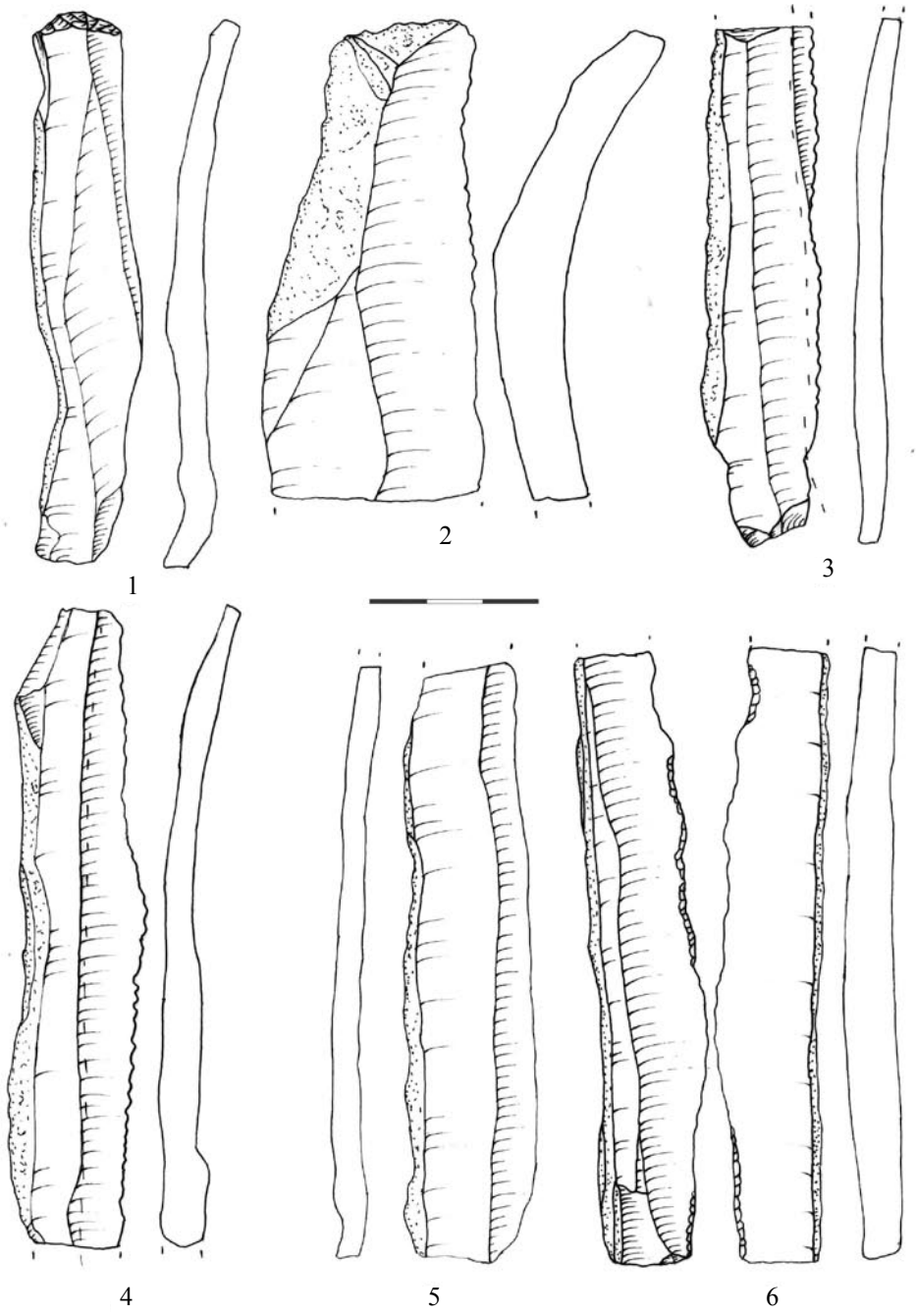

Fig. 2. Artifacts from Küllüoba: 1 – end-scraper on blade;
2–4, 6 – blades with denticulated retouch; 5 – blade

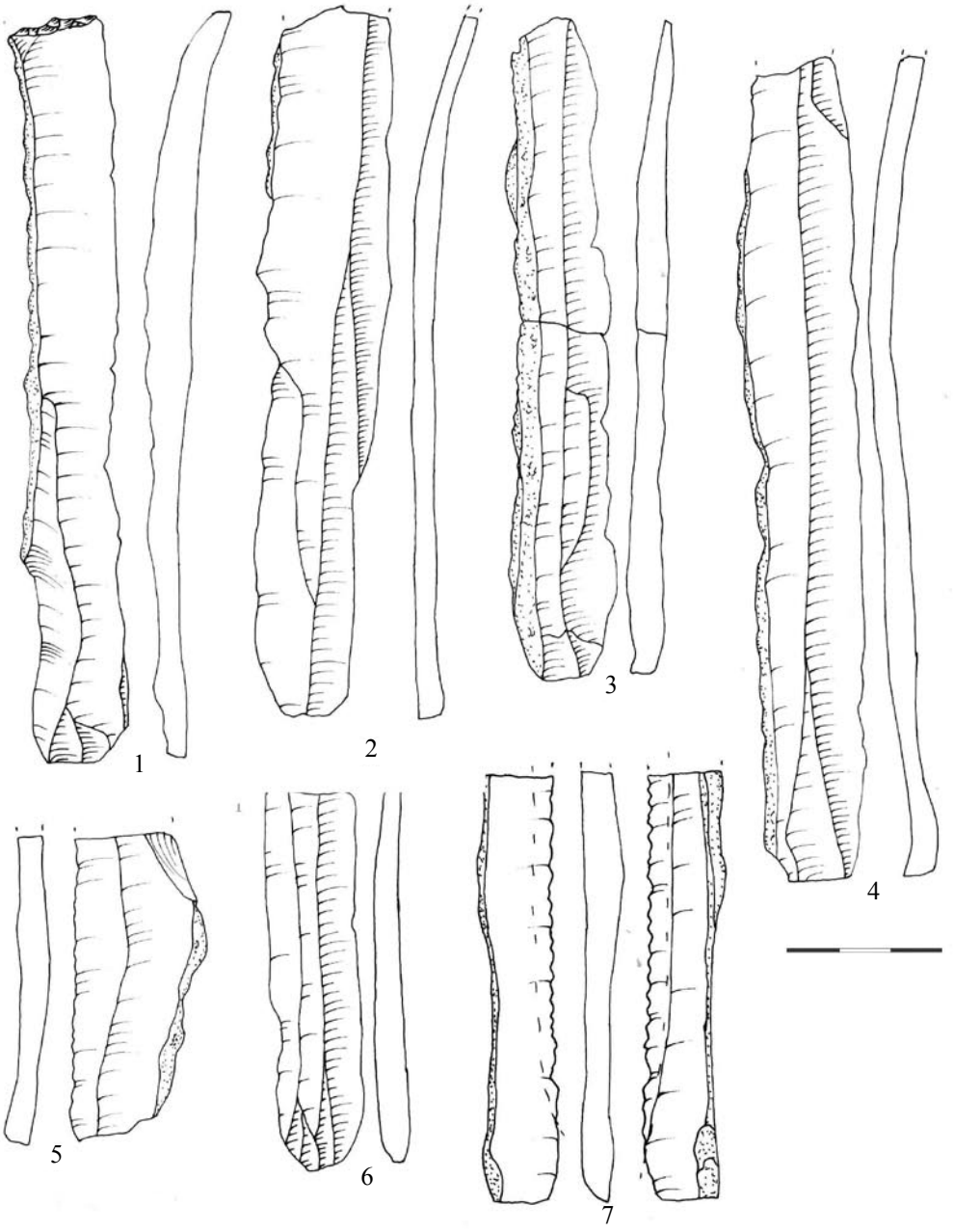

Fig. 3. Artifacts from Küllüoba: 1 – truncation; 2–4, 6 – blades; 5, 7 – blades with denticulated retouch

It is very likely that some of the whole blades were intentionally broken and after that their fragments were used as inserts, sickles or knives. It wasn't by chance that most of the blade fragments – retouched or without retouch present traces of usage, while the whole specimens were not used as a rule.

The whole blades processed display cortical edges and totally similar technological and typological characteristics, and they could be considered as some kind of "depot" or "store" of blank for blade knives or element of composite tools.

Up to time being a very weak comparative base concerning the stone technology from the Bronze Age period in this region existed.

Some information has been received from the Late Bronze Age period at Troia – especially from Troia VI and VII[3].The group of retouched tools have been presented mostly by blades with denticulate retouch, which could be considered are typical during the entire Bronze Age period at all in this region.

Very often one of the edges is covered by lateral cortex, which probably has been left intentionally – for accommodation, while the opposite one is with denticulated retouch and should be connected mostly with bone or wood possessing.

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The stone industry of the collection under study is featured by unidirectional blade core reduction. On base of the entire blade sizes' the core length could be reached at least 20 cm. Most of the core specimens have been undergone more or less diligent preparation, which is proved by the presence of cortical and crested specimens. One of the ultimate aims of this production chain was orientated to blade reduction cores and blade acquiring. In this connection it could be suggested that this was the most characteristic feature of the Küllüoba EB II stone industry.

Simultaneously the group of the retouched tools is characterized by the presence of single specimens of blade end scrapes and truncations, retouched and denticulate blades. It should be emphasized that the most typical tools of Küllüoba EB II industry were blade fragments with denticulate retouch. As a whole retouched tool structure display very strong typological monotony, this was characteristic for the Bronze Age period at all.

In case of Küllüoba raw material procurement and economy was orientated to local raw material, which consisted of different varieties of quartz (similar situation has been seen in Troia).

During the period investigated the system of local raw material supply had functioned. It is very likely that the places of founding the raw material concentration were located somewhere around the site or at least not far a way from it.

Most of the whole blades do not display traces of usage, while all most all blade fragments, which have been processed, were used – in other words blade fragments without traces of usage as a whole are practically missing. About the above presented

blades – whole specimens can be considered as "store". The former were broken and after that their fragments were used.

We would like to thank to Prof. Dr. T. Efe for his kindly invitation and for the possibility to work with the stone material from the site of Küllüoba, Eşkisehir region.

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НЯКОИ БЕЛЕЖКИ ОТНОСНО КАМЕННИТЕ АРТЕФАКТИ ОТ РАННОБРОНЗОВАТА ЕПОХА II – ПРАИСТОРИЧЕСКОТО СЕЛИЩЕ КЮЛУОБА, РАЙОН ЕСХИШЕХИР, СЕВЕРОЗАПАДНА ТУРЦИЯ

ИВАН ГАЦОВ (СОФИЯ), ПЕТРАНКА НЕДЕЛЧЕВА (СОФИЯ)

В статията са представени някои от предварителните резултати от изследването на каменен ансамбъл от ранната бронзова епоха от праисторическото селище Кюлуоба, район Есхишехир, Северозападна Турция.

На базата на технико-типологическия анализ е установено, че някои от регистрираните цели пластини "пасват" една към друга и без съмнение са били отделени от една и съща изходна форма. Интересното е, че тези пластини са без следи от използване, докато в същото време всички регистрирани фрагменти от пластини имат следи от употреба. Всичко това предполага, че част от целите пластини са били складирани, като е възможно те да са били и предмет на обмен. Едва след тяхното преднамерено счупване фрагментите от тези пластини са били използвани за извършването на различни операции.

Друга характерна особеност на разглежданите ансамбли е наличието на зъбчати оръдия, т.е. пластини със зъбчат ретуш, които са регистрирани през всички периоди на бронзовата епоха в разглеждания район – така напр. в Троя VI и Троя VII, намерени в това селище.

МЕТАЛЛИЧЕСКИЕ ИЗДЕЛИЯ ЯМНЫХ ПЛЕМЕН СЕВЕРО-ЗАПАДНОГО ПРИЧЕРНОМОРЬЯ

ЛЕОНИД В. СУББОТИН (ОДЕССА)

Древняя история степей и лесостепи Причерноморья, простирающихся от низовьев Дуная и Прута до Южного Буга, неразрывно связана с обитанием населения ямной культуры.

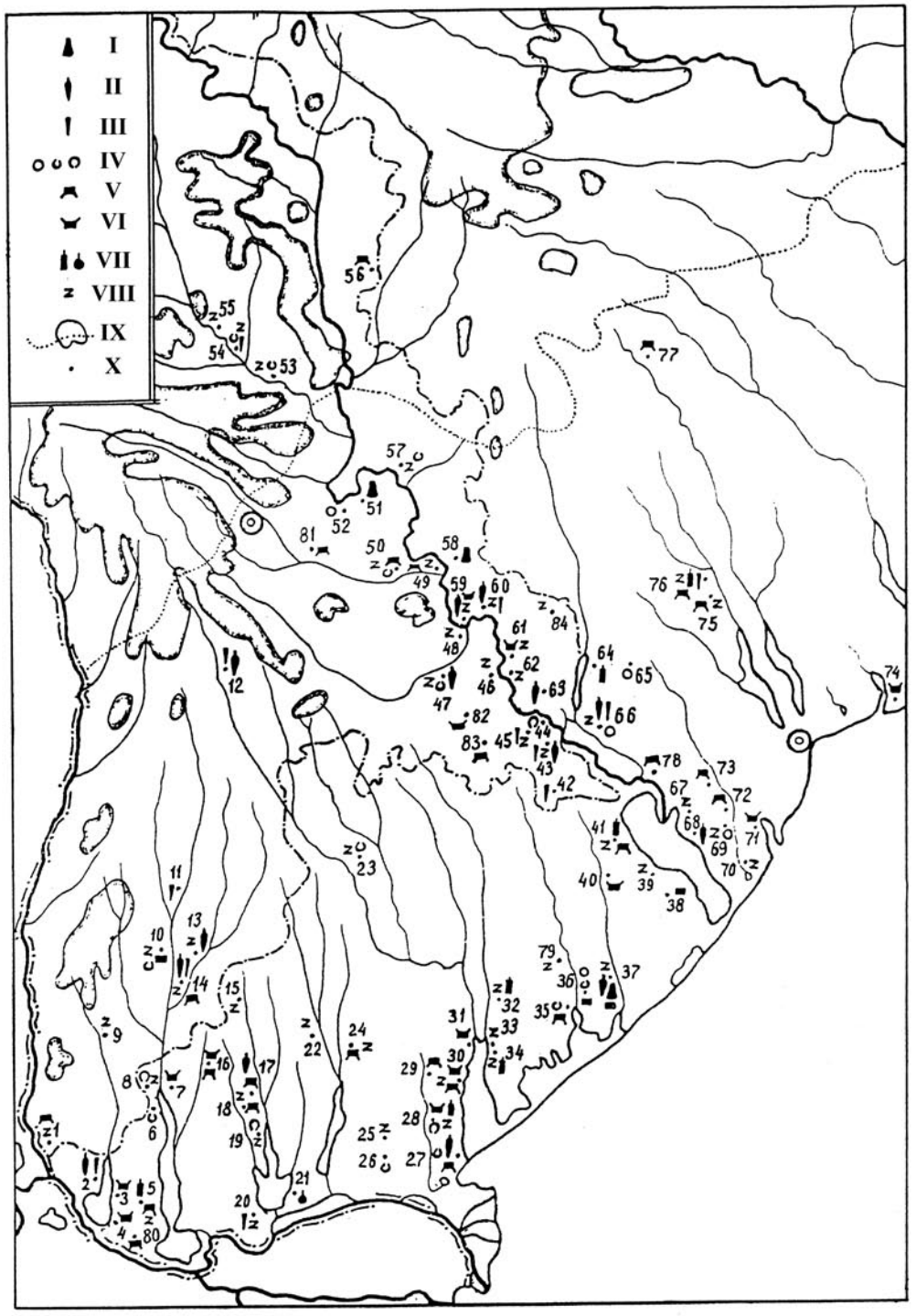
Просуществовав здесь со второй половины III по начало II тыс. до н. э., его скотоводческие племена оставили после себя многочисленные курганные памятники. Их раскопки, ведущиеся более ста лет, позволили исследовать к началу XXI века 2112 ямных погребений в 556 курганах, располагавшихся в южных районах Украины и Республики Молдова у 167 пунктов.

Среди курганных материалов, дающих представление о жизни и быте местных ямных племен, о характере их хозяйственной деятельности и о развитии социальной дифференциации, особое место занимают артефакты из металлов (фиг. 1).

С их находками связывается половина упомянутого числа пунктов, 129, или 23,2% курганов и 163 погребения, или 7,7% от всех выявленных погребений ямной культуры[1]. О том, насколько высок этот показатель, говорит его сравнение с данными по аналогичным памятникам, исследованным севернее рассматриваемого региона. Так, в южнобугском варианте ямной культурно-исторической области погребения с металлическими изделиями составляют около 1,5%[2], а в Днепровском Надпорожье, в правобережном и левобережном Предстепье – около 1,7–2% от общего числа раскопанных здесь ямных погребений[3].

Следует отметить также и тот факт, что и общая численность металлических артефактов, найденных в ямных погребениях Северо-Западного Причерноморья, является более высокой, чем у находок из иных материалов. Для сравнения: предметов из металлов здесь выявлено 322, а из кости и рога – 260, из кремня – 227, из камня – 100.

Для изготовления металлических предметов ямные мастера использовали различные доступные для них материалы. Подавляющее большинство найденных в Северо-Западном Причерноморье металлических артефактов – 210 – представлено изделиями из меди и бронзы, 107 находок – серебряные, 4 – золотые и 1 – из свинца. О химическом составе основных металлов, использовавшихся для изготовления орудий и украшений, можно судить по приводимой ниже таблице 1, которая составлена по данным Лаборатории спектрального анализа ИА АН СССР[4].


I
II
III
IV
V
VI
VII
VIII
IX
X

В целом, ассортимент рассматриваемых металлических артефактов сравнительно небольшой, но довольно показательный, функционально и типологически подразделяющийся, в основном, на ряд специфических групп.

Тесла – одни из самых крупных металлических изделий, известны лишь в трех экземплярах. Судя по анализу одного из них (табл. 1: 1), эти орудия отливались из мышьяковистой бронзы и формировались горячей ковкой с последующей упрочняющей проковкой лезвия вхолодную.

Найденные тесла делятся морфологически на два типа. Первый представлен трапециевидными в плане изделиями с широким, слегка округленным лезвием

Фиг. 1. Карта распространения металлических артефактов ямной культуры в Северо-Западном Причерноморье.
I – тесла; II – ножи; III – шилья; IV – кольца, кольца-подвески (серьги ?), браслеты; V – пронизки, обоймочки браслетные; VI – пронизки-бусины; VII – подвески продолговатые (пронизки, обоймочки) и шаровидные; VIII – подвески спиральные; IX – леса; X – пункты находок:
1 – Джюрджюлешть II, 1/9; **2** – Фрикацей (Лиманское Ренийского района), 4/12; **3** –Нагорное, 14/15; **4** – Орловка, 1/9; **5** – Плавни, 8/31; 9/12; 25/1; 26/7; 30/5; **6** – Курчи I, 2/10; **7** – Болград, 1/9; **8** – Курчи, 3/2; 20/16; 26/5; **9** – Гаваноаса, 4/3; **10** – Балабаны, 13/12, 15; **11** – Конгаз, 1/5; **12** – Градиште, 1/17; **13** – Казаклия I, 16/4; 17/3; 23/10; Казаклия II, 3/7; **14** – Тараклия II, 3/7; 10/10, 19; **15** – Огородное-80, 1/6; **16** – Кубей, 21/16; 22/18; 23/16; **17** – Новокаменка, 1/5, 11; **18** – Каменка I, 1/4, 8; **19** – Утконосовка, 1/6; 6/1; **20** – Богатое, 2/11, 17; **21** – Кислица, 8/6; **22** – Островное, 2/6, 7; **23** – Березино, 1/2; 3/?; **24** – Холмское, 2/8, 13, 37; 8/6; **25** – Шевченково, 3/6; **26** – Парапоры (Шевченково), 1/20; **27** – Приморское, 1/32, 34, 50; **28** – Нерушай, 1/14; 9/56; 10/13, 14; **29** – Баштановка, 4/25; **30** – Глубокое, 1/7,24,25,26; **31** – Борисовка, 9/6; **32** – Белолесье, 4/4; 7/4; 11/9; **33** – Новоселица, 19/11; 21/1; **34** – Траповка-74, 1/9, 11; Траповка, 4/7; **35** – Лиман, 3А/30, 52; 7/3; **36** – Дивизия II, 5/8; 6/1,3,6; **37** – Алкалия (Широкое), 5/8; 33/3,7,9; 35/6; **38** – Турлаки (Выпасное), 1/8; **39** – Садовое, 1/26, 32; **40** – Подгорное, Крестовая могила/19; **41** – Семеновка, 2/2; 8/15, 16, 17; 11/5; 19/9; **42** – Капланы, 1/9; **43** – Оланешты, 1/16; 6/2,8; 8/7; 13/5; **44** – Новые Раскаецы, 1/11; **45** – Пуркары, 1/31, 38; 3/1; **46** – Талмаз, 1/6; 3/4; **47** – Каушаны, 1/10, 13; **48** – Хаджимус, 2/7; **49** – Гура-Быкулуй, 3/13; 5/3; 9/1; **50** – Рошканы, 1/13, 19; 2/3; **51** – Коржево, 4/4; **52** – Балабанешты, 1/3; **53** – Оргеев, 1/2, 6; 54 – Бравичены, 1/14; 2/7,8; 7/2; **55** – Чокылтяны, 5/6; **56** – Мокра, 1/3; **57** – Красное, 2/5; 9/19; **58** – Бычок, 1/6; **59** – Терновка II, 224/1; Терновка III, 2/17; **60** –Тирасполь, 3/18; 193/4; **61** – Слободзея, 1/19; 4/4, 5, 12; **62** – Чобручи, 1/11; **63** – Глинное, 1/6; **64** – Зальце (Лиманское), 4/4; **65** – Щербанка, 1/7; **66** – Ясски, 1/18, 30; 2/2; 5/22; **67** – Ефимовка (Надлиманское), 10/10; **68** – Николаевка, 1/4; **69** – Доброалександровка, 1/5; **70** – Санжейка, 1/8; **71** – Александровка, 1/32а; **72** –Новоградковка, 1/4; **73** – Петродолинское, 1/9; **74** – Старые Беляры, 1/14; **75** – Бараново, 1/9, 10; **76** – Катаржино (Червонознаменка), 1/1, 11; 77 – Григорьевка, 1/12; **78** – Беляевка, 1/34; **79** – Сергеевка, 1/2; **80** – Градешка I, 5/11; **81** – Мерены, 1/3; **82** – Фештелица, 1/7; **83** – Штефан Водэ I (Суворово), 1/7; **84** – Никольское I, 1/11; 7/7

Таблица 1. Химический состав металлических изделий

№ п/п анализа	Изделие	Место находки	Фиг.	Шифр	Cu	Sn %	Pb %	Zn %	Bi %	Ag %	Sb %	As %	Fe %	Ni %	Co %	Au %
1	Тесло	Бычок, 1/6	2: 1	38013	Основа	0,0001	0,015	~0,0086	0,013	0,022	0,0077	4,5	~0,019	0,013	~0,0013	0,0015
2	Нож-кинжал	Глиное, 1/6	2: 7	38015	Основа	0,0008	0,7	~0,0047	0,0015	0,014	0,052	0,5	0,06	0,021	-	~0,0005
3	Нож	Градиште, 1/17	2: 11	38007	Основа	0,011	1,1	~0,0047	0,012	0,028	0,047	0,37	~0,015	0,14	-	~0,0005
4	Шило	Градиште, 1/17	3: 2	38008	Основа	0,0062	0,52	~0,0033	0,002	0,035	0,0022	0,027	0,092	0,1	-	-
5	Нож-бритва	Тараклия II, 10/19	2: 8	38012	Основа	0,04	0,63	~0,006	0,013	0,06	0,032	0,61	~0,015	0,18	-	~0,0008
6	Шило	Тараклия II, 10/19	3: 8	38011	Основа	0,0006	0,048	~0,0033	0,0052	0,035	0,016	0,84	~0,017	0,035	-	0,0015
7	Шило	Конгаз, 1/5	3: 12	38017	Основа	0,0042	0,022	~0,0037	0,0095	0,13	0,017	0,21	~0,015	0,024	-	0,0015
8	Шило	Оланешты,8/7	3: 4	38009	Основа	0,0016	0,12	~0,0053	0,069	0,046	~0,026	3,2	0,027	0,032	~0,0013	-
9	Шило	Пуркары, 1/38	3: 6	38003	Основа	0,0012	0,00-25	~0,0033	0,0004	0,06	0,0012	-	~0,015	0,0033	~0,0013	-
10	Шило	Пуркары, 1/38	3: 16	38004	Основа	0,0012	1,4	~0,0033	0,0052	0,017	0,032	0,84	~0,015	0,22	~0,0013	~0,0006
11	Браслет	Новые Раскаецы, 1/11	3: 14	38014	Основа	0,0008	1,6	~0,0053	0,0011	0,009	0,017	0,19	~0,015	0,021	-	~0,0007
12	Подвеска-обоймочка	Траповка, 4/7	4: 11	27733	Основа	0,002	0,9	-	0,04	0,003	0,004	0,04	0,15	0,002	-	0,001
13	Подвеска-обоймочка	Траповка, 4/7	4: 12	27734	Основа	0,3	0,3	-	0,006	0,015	0,02	0,15	0,35	0,009	-	0,001
14	Подвеска-обоймочка	Траповка, 4/7	4: 13	27738	Основа	0,001	0,015	-	0,0006	0,0002	<0,002	0,1	0,35	0,0001	-	-
15	Подвеска-обоймочка	Траповка, 4/7	4: 14	27733	Основа	0,001	0,05	-	0,0015	0,0002	0,01	0,1	0,025	0,003	-	<0,001
16	Подвеска-обоймочка	Траповка, 4/7	4: 15	27736	Основа	0,002	0,12	-	0,006	0,006	0,003	0,07	0,05	0,002	-	0,001
17	Обоймочка от брасл.	Семеновка, 2/2	3: 18	27731	Основа	0,0001	0,00-08	-	0,025	0,003	-	0,25	0,1	0,001	-	<0,001
18	Пронизка от браслета	Семеновка, 8/15	3: 19	27730	Основа	0,08	0,18	-	0,009	0,006	0,009	0,2	0,008	0,006	-	0,001
19	Пронизка от браслета	Семеновка, 19/9	3: 11	27728	Основа	0,004	0,007	-	-	0,07	-	0,18	0,1	0,001	-	0,003
20	Подвеска спиральная	Новоселица, 19/11	5: 22	27744	1–3%	≥0,0003%	0,07	-	0,004	Основа	-	-	0,005	-	-	0,01–0,03
21	Подвеска спиральная	Новоселица, 19/11	5: 23	27743	~ 1 – 10%	-	0,035	-	0,005	Основа	-	-	0,05	-	-	0,003–0,01
22	Подвеска спиральная	Новоселица, 21/1	5: 14	27742	~1%	0,007	0,02	-	-	Основа	-	-	0,03	-	-	0,03–01
23	Подвеска спиральная	Семеновка, 11/5	5: 9	27727	10%	0,0035	0,06	-	0,012	Основа	-	-	0,001	?	?	0,03

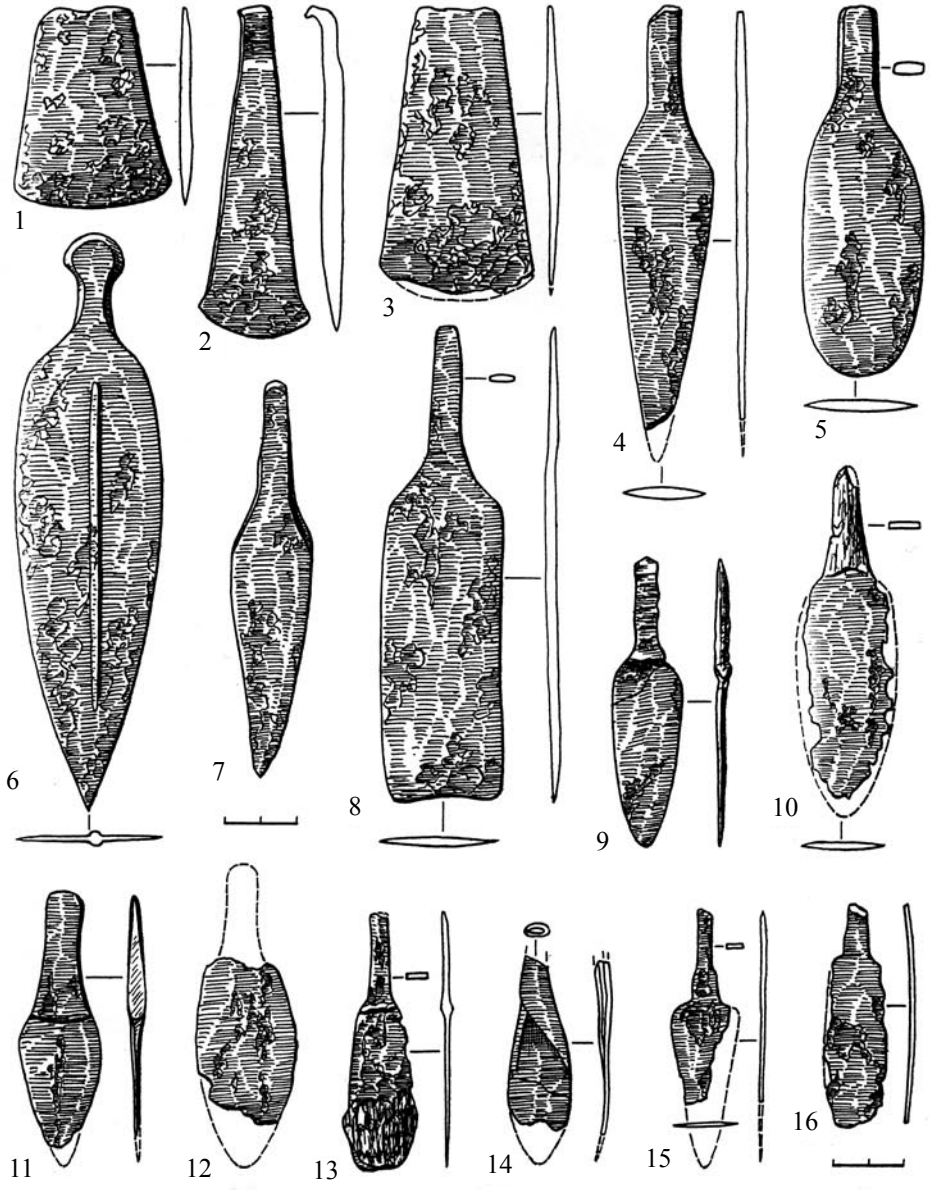
и ровной, более узкой пяткой (фиг. 2: 1, 3). Длина их 5,7 и 8 см, ширина лезвия 4,3 см, пяток – 2,5 и 2,4 см соответственно. Толщина – 0,4–0,5 см. Ко второму типу относится трапециевидно удлиненное тесло с округленным лезвием, имеющим выступающие края (фиг. 2: 2). Его длина 8,8 см, ширина лезвия 2,9 см, пятки – 0,7 см, а толщина – более 0,5 см.

Ножи в ряде случаев крупнее тесел. Они представлены 16 экземплярами, среди которых по функциональным особенностям различается три категории: собственно **ножи, ножи-кинжалы** и **ножи-бритвы.** Исследование трех ножей, отражающих все эти категории (табл. 1: 2, 3, 5) показало, что все они сделаны из свинцово-мышьяковистой бронзы путем литья и последующей горячей ковки заготовок без упрочняющей холодной проковки лезвий. Все ножи обоюдоострые, черенковые.

Ножи-кинжалы имеют треугольно вытянутую остроконечную форму (фиг. 2: 4, 6, 7). Их длина 11,5–16,3 см, длина лезвий – 7,5–13,3 см, наибольшая ширина – 2,4–4,2 см. Самый крупный кинжал выделяется наличием нервюры и округлой формовкой черенкового окончания (фиг. 2: 6). **Ножи-бритвы**, в отличие от иных, имеют лезвие в виде вытянутой лопаты, режущие края которого параллельны либо немного расширены к чуть округленному с боков концу (фиг. 2: 8, 13, 16). Длина этих изделий 6,2–13,2 см, длина их лезвий – 4,5–9,2 см, наибольшая ширина – 1,7–3,2 см. Остальные **ножи** по форме лезвий в основном двух типов: лавролистные с округленным концом (фиг. 2: 5, 10, 12, 14) и треугольно вытянутые, кинжаловидные (фиг. 2: 9, 11, 15). Первые – чаще более крупные. Их длина до 10,3 см, длина лезвий – до 7,5 см, ширина – до 3,2 см. Длина вторых – до 9 см, длина лезвий – 3,5–6,0 см, ширина – 1,9–2,3 см.

Судя по остаткам дерева на черенке одного из ножей (Ясски, 2/2) и на лезвии другого (Алкалия, 5/8), изделия имели деревянные рукоятки и носились в деревянных футлярах-ножнах (фиг. 2: 10, 13).

Шилья (14 экземпляров) делались из литых металлических прутьев с помощью горячей ковки, чаще с последующей упрочняющей ковкой вхолодную всего стержня либо только его острых концов. Материалом для изготовления шильев служили как металлургически “чистая” медь (табл. 1: 4, 9), так и бронзы – мышьяковистая (табл. 1: 6–8) и свинцово-мышьяковистая (табл. 1: 10). Длина изделий – от 3,7 до 6 см. Все они четырехгранные. Некоторые имеют одно рабочее острие, второй же их конец уплощенный (фиг. 3: 5, 6). Возможно, эти изделия служили и **пробойниками.** Другая часть шильев оформлялась обоюдоостро (фиг. 3: 3, 7, 16), иногда с незначительной расклепкой конца, предназначавшегося для вставления в рукоятку (фиг. 3: 1, 13*)*. Последняя, судя по ряду находок в погребениях бронзового века, была деревянной[5] либо костяной[6]. Думается, что строго обоюдоострые шилья, использовавшиеся со съемной рукояткой, сделанной из трубчатой кости, были вкладышевыми, и рабочими у них были попеременно оба конца. Во всяком



Фиг. 2. Орудия из бронзы: 1–3 – тесла; 4 – нож-кинжал; 5–8, 14, 15 – ножи; 13, 16 – ножи-бритвы (1 – Бычок, 1/6; 2 – Коржево, 4/4; 3 – Алкалия, 35/6; 4 – Фрикацей, 4/12; 5 – Приморское, 1/50; 6 – Казаклия, 16/4; 7 – Глинное, 1/6; 8 – Тараклия II, 10/19; 9 – Каушаны, 1/10; 10 – Ясски, 2/2; 11 – Градиште, 1/17; 12 – Алкалия, 33/3; 13 – Алкалия, 5/8; 14 – Оланешты, 13/5; 15 – Новокаменка, 1/11; 16 – Оланешты, 6/2)

случае, видимо именно с этой целью у таких шильев и производилось упрочнение обоих концов дополнительной проковкой[7].

Браслеты цельные делались из литых бронзовых прутков-заготовок, вытянутых горячей ковкой и вгорячую согнутых в кольца с несомкнутыми концами, диаметром до 6 см (фиг. 3: 9, 14). Бронза одного из браслетов определена как свинцово-мышьяковистая (табл. 1: 11). Судя по данным раскопок, все найденные браслеты (2 целых и 2 фрагментированных) были надетыми на запястье правой руки.

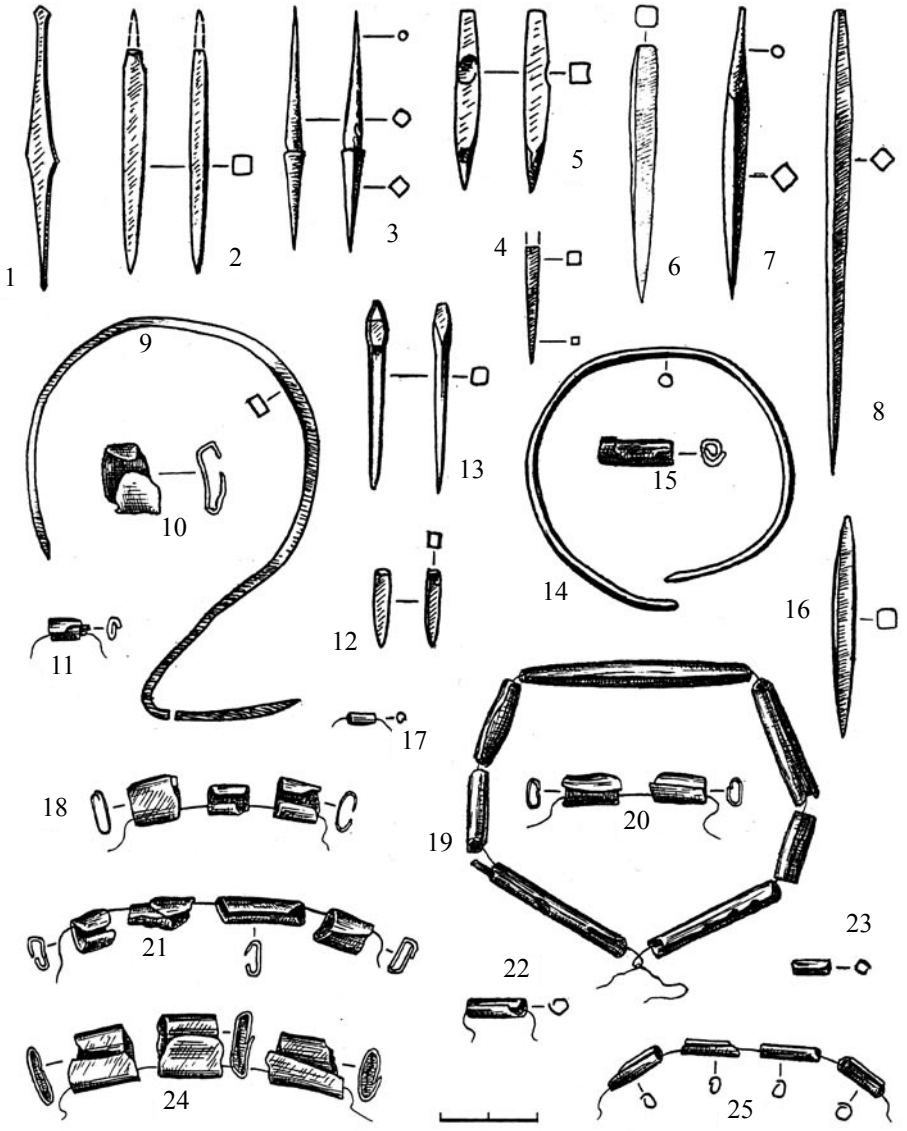
Пронизки и **обоймочки** – наиболее массовые из металлических находок, составляющие среди них 41,1% – 143 экземпляра из 60 погребений. Исходя из результатов анализов таких изделий (табл. 1: 12–19), они делались из кованых пластинок металлургически "чистой" меди, толщиной 0,05–0,1 см.

Внешне пронизки и обоймочки бывают довольно сходными, но, тем не менее, между ними существует и принципиальное различие. **Пронизки** – это изделия из отрезков медных пластинок, свернутых в трубочки, свободно нанизывающиеся на шнурки. В зависимости от способа сворачивания, трубчатые пронизки получались цилиндрическими либо четырехгранными. **Обоймочки** же закреплялись на шнурках либо ремешках неподвижно. В связи с этим, они имеют вид сильно загнутых пластинчатых скобок или сплюснутых трубочек. И те, и другие рассматриваемые изделия использовались в качестве украшений как височные подвески и как детали составных браслетов, а пронизки, кроме того, служили еще и бусинками.

Обоймочки и **пронизки составных браслетов** (18 и 63 экз.) встречены в погребениях по 1–7 на запястьях правой и левой (чаще) руки. В двух случаях они находились выше щиколотки левой ноги (Баштановка, 4/25; Зальце, 4/4). Длина браслетных обоймочек от 1 до 2 см, ширина – 0,6–1,4 см, толщина – 0,25–0,45 см (фиг. 3: 21; 4: 18). Длина пронизок – 1–1,5 см, диаметр либо наибольший размер овала в сечении – 0,25–0,6 см (фиг. 3: 15, 19, 23). В трех обоймочках одного составного браслета (Алкалия, 33/3) отмечены остатки кожаного ремешка (фиг. 3: 24).

Пронизки-бусины (40 экземпляров) носились на шее надетыми на шнурки как по одной, так и по несколько (до 11). Длина их 0,4–1,3 см, диаметр – 0,2–0,65 см (фиг. 4: 5, 8). Уникальна бусина (Подгорное, 1/19), имеющая длину 6,3 см (фиг. 4: 9). Иногда пронизки-бусины из меди составляли шейное украшение в сочетании с подвесками из зубов оленя либо из клыков хищников (рис. 4: 3, 4).

Подвески-обоймочки (11 экз.) и **подвески-пронизки** (6 экз.) находились у висков погребенного: по экземпляру у одного виска (у правого) либо по 1 и 3 (в одном случае) у обоих висков (Траповка, 4/7). Длина таких обоймочек от 1 до 2,6 см, ширина – 0,6–1,5 см, толщина – 0,25–0,5 см (фиг. 4: 10–18). Длина подвесок-пронизок 3,1–3,3 см, размер овалов сечения – 0,35х0,45–0,5х0,7 см (фиг. 4: 21–24). В шести подвесках-обоймочках из Траповки,4/7 были выявлены окислив-



Фиг. 3. Орудия и украшения из металлов: 1, 2, 6 – шилья медные; 3–5, 7, 8, 12, 13, 16 – шилья бронзовые; 9, 14 – браслеты бронзовые; 10, 18, 20, 21, 24 – медные обоймочки от браслетов; 11, 15, 17, 19, 22, 23, 25 – медные пронизки от браслетов (1 – Тирасполь, 193/4; 2 – Градиште, 1/17; 3 – Бравичены, 2/7; 4 – Оланешты, 8/7; 5 – Ясски, 1/30; 6,16 – Пуркары, 1/38; 7 – Фрикацей, 4/12; 8 – Тараклия II, 10/19; 9 – Курчи, 3/2; 10,23 – Зальце, 4/4; 11 – Семеновка, 19/9; 12 – Конгаз, 1/5; 13 – Катаржино, 1/11; 14 – Новые Русешты, 1/11; 15 – Мокра, 1/3; 17 – Бараново, 1/9; 18 – Семеновка, 2/2; 19 – Лиман, 3А/30; 20 – Холмское, 2/13; 21 – Рошканы, 1/13; 22 – Баштановка, 4/25; 24 – Алкалия, 33/3; 25 – Семеновка, 8/15)

шиеся остатки шнурков, диаметром 0,2–0,25 см (по 2–4 в обоймочке), сплетенных из спаренных ниток (фиг. 4: 10–15).

Подвески спиральные височные, часто именующиеся височными кольцами в 1,5 (и т. д.) оборота, представлены 113 экземплярами (35,1% от общего числа металлических артефактов), найденными в 73 погребениях. Все они свиты из металлической проволоки (94 экземпляра – серебряные, 16 – из меди бронзы, 3 – из золота) в виде пружинки в полтора или несколько оборотов (фиг. 5). Вполне допустимо, что эти изделия могли служить и серьгами.

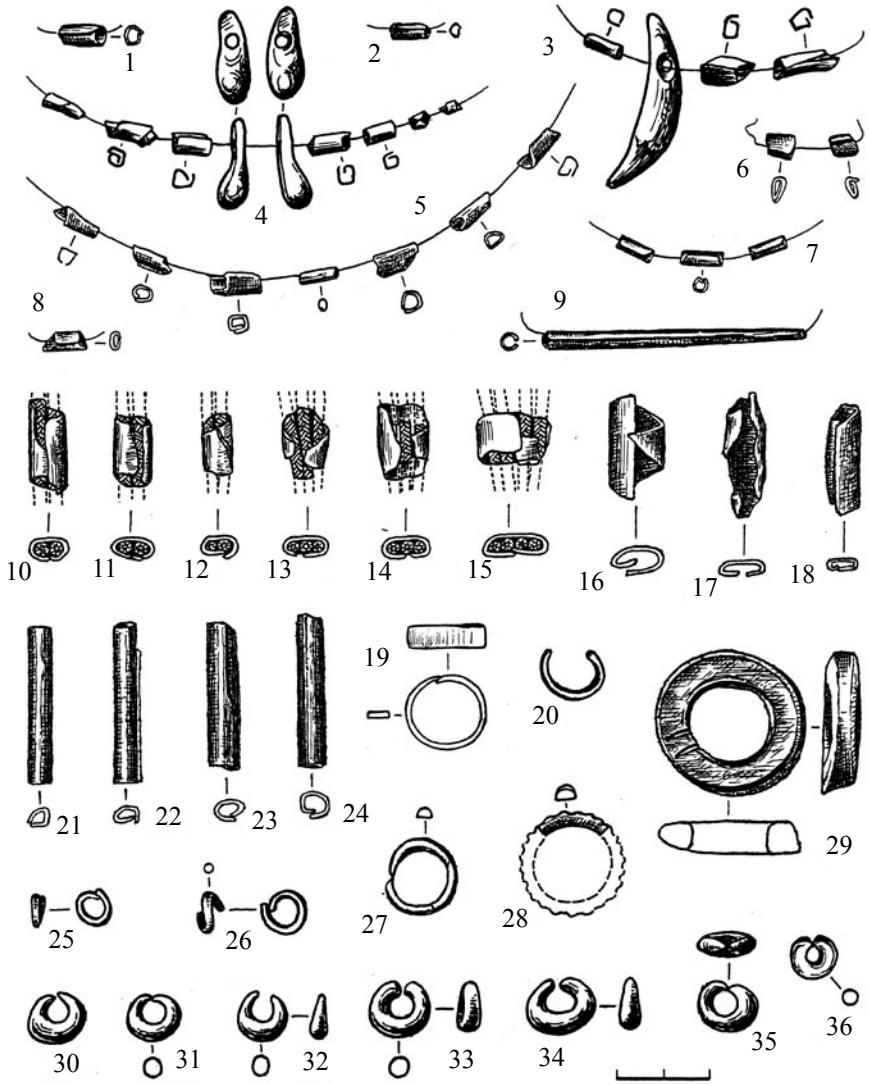
О химическом составе металлов, шедших на изготовление рассматриваемых ювелирных изделий, сегодня можно судить лишь по спектральным анализам четырех серебряных подвесок (табл. 1: 20–23). Кроме того, известны данные апробирования трех золотых и семи серебряных спиралей (табл. 2) из курганов Украины[8] и Республики Молдова[9].

Более половины таких находок (68 экз.) свернуты в 1,5 оборота, за ними, резко уменьшаясь количественно, следуют подвески в 2,5 оборота (19 экз.) и в 3,5 оборота (10 экз.). Единично (по 6–2 экз.) представлены подвески в 2; 3; 4; 4,5 и в 6 оборотов. Проволока, из которой делались такие подвески, в сечении круглая, диаметром 0,1–0,6 см, либо овальная, размером от 0,1х0,15 до 0,4х0,5 см. Внешний диаметр самих спиралей – 0,4–2,5 см, их длина – 0,3–2,4 см. Концы спиралей чаще всего сплюснуты.

Располагались спиральные подвески в большинстве случаев по одной у обоих висков погребенного, частично – у одного виска (чаще у правого). В единичных случаях общее число таких подвесок равнялось трем (Каменка, 1/4; Пуркары, 1/31; Утконосовка, 6/1) и, даже, пяти (Белолесье, 7/4). В одном из таких погребений (Пуркары, 1/31) отмечено и необычное расположение спиральных подвесок – они находились за теменной частью головы погребенного, лежавшего на боку.

Таблица 2. Данные апробирования спиральных подвесок

№№ подвески	Место находки	Металл	Вес	Проба	Фиг.
1	Глубокое, 1/7	Золото	0,78 г	750	5: 1
2	Плавни, 26/7	Золото	1,33 г	900	5: 7
3	Тараклия II, 14/3	Золото	4,42 г	958	-
4	Курчи, 20/16	Серебро	2,94 г	980	5: 25
5	Курчи, 20/16	Серебро	3,26 г	980	5: 24
6	Казаклия II, 3/7	Серебро	1,74 г	1000	-
7	Казаклия II, 3/7	Серебро	0,69 г	925	-
8	Джюрджюлешть II, 1/9	Серебро	2,79 г	925	-
9	Джюрджюлешть II, 1/9	Серебро	5,13 г	925	-
10	Джюрджюлешть II, 1/9	Серебро	6,59 г	916	-



Фиг. 4. Украшения из металлов: 1–9 – медные пронизки-бусины (3 – с клыком хищника; 4 – с зубами оленя); 10–18 – медные подвески-обоймочки; 19, 28 – бронзовые кольца; 20 – медное кольцо; 21–24 – медные подвески-пронизки; 25, 26 – височные подвески из меди и серебра; 27, 29 – кольца из серебра и свинца; 30–36 – кольца-подвески (серьги?) серебряные (1 – Кубей, 23/16; 2 – Кубей, 22/18; 3 – Нерушай, 10/14; 4 – Болград, 1/9; 5 – Борисовка, 9/6; 6 – Орловка, 1/9; 7 – Старые Беляры, 1/14; 8 – Александровка, 1/32а; 9 – Подгорное, 1/19; 10–15 – Траповка, 4/7; 16 – Траповка, 1/11; 17 – Нерушай, 10/13; 18 – Белолесье, 4/4; 19 – Балабанешты, 1/3; 20 – Дивизия II, 5/8; 21,22 – Слободзея, 4/4; 23, 24 – Слободзея, 4/5; 25 – Лиман, 3а/52; 26 – Красное, 5/19; 27 – Ясски, 5/22; 28 – Дивизия II, 6/6; 29 – Доброалександровка, 1/5; 30,31 – Лиман, 7/3; 32 – Бравичены, 2/7; 33, 34 – Рошканы, 1/19; 35 – Оргеев, 1/2; 36 – Каушаны, 1/10)

Общим является тот факт, что в одно захоронение никогда не помещались подвески из разных металлов.

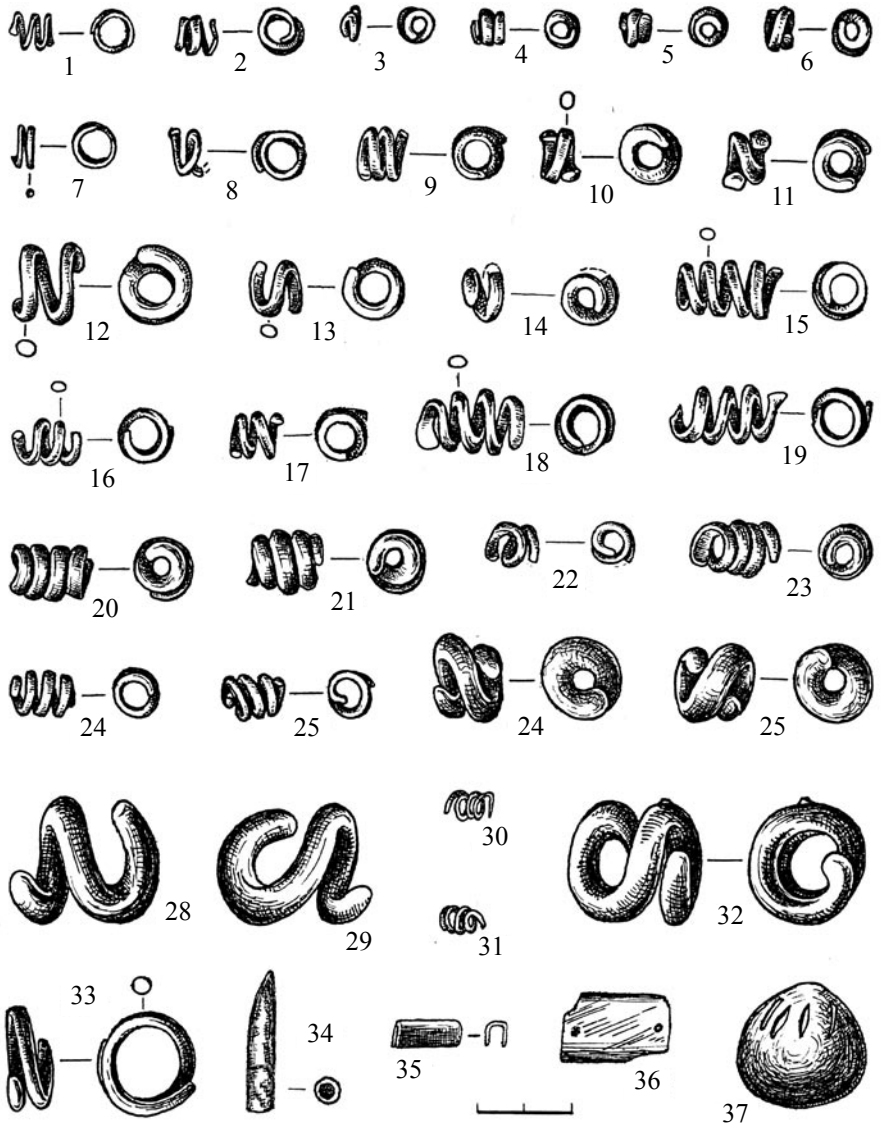
Кольца (22 экземпляра) различны по назначению, по форме и материалу. Четыре из них – перстневидные, носившиеся, судя по двум находкам, на указательном пальце правой руки. Они свернуты из пластинчатых лент меди-бронзы (фиг. 4: 19,28) и серебра (фиг. 4: 27), толщиной 0,1–0,25 см и шириной 0,25–0,5 см. Наибольший диаметр – 2 см. Одно из колец (Дивизия П, 6/6) выполнено снаружи рельефно-волнистым (фиг. 4: 28). К этой группе примыкает и уникальное кольцо из Доброалександровки, 1/5, выкованное из отрезка свинцового прута, имевшего толщину 0,4х0,7 см. Внутренний диаметр этого кольца – до 1,8 см (фиг. 4: 29).

Остальные кольца (17 экз.) находились у висков погребенных и, судя по конфигурации, могли служить как височными подвесками, так и серьгами. Эти кольца представлены двумя типами. Первый тип (10 экз.) представляют собой изделия из медной и серебряной проволоки толщиной от 0,1 до 0,3 см (фиг. 4: 20, 25, 26). Все они сделаны округлыми, но концы их при этом разомкнуты и иногда чуть разведены с небольшим заходом друг над другом, как у спиральных височных подвесок в 1,5 оборота. Такие **округлые кольца-подвески (серьги?)** имеют диаметр от 0,8 до 1,4 см. Второй тип (7 экз.) составляют серебряные **серповидные кольца-подвески (серьги?)** с зауженными несомкнутыми концами и утолщенной противоположной им стороной (фиг. 4: 30–35). Внешний диаметр этих колец – 1–1,2 см, диаметр утолщенной части – от 0,25 до 0,6 см.

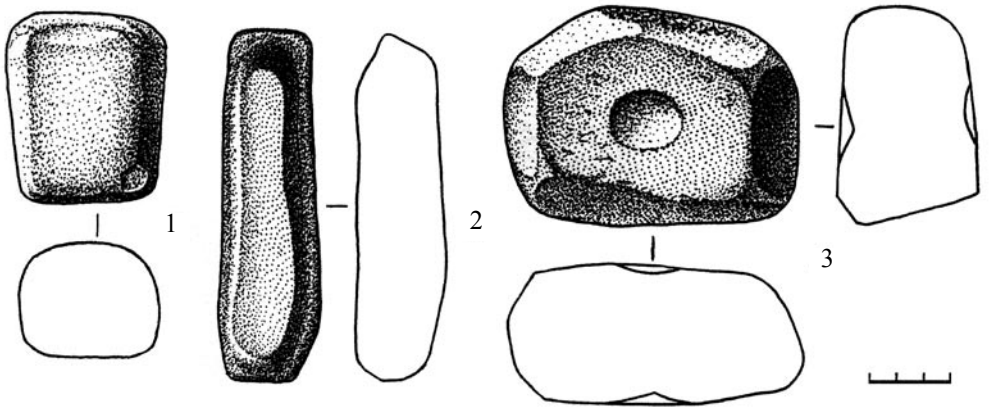
Помимо отмеченных широко распространенных артефактов, несколько металлических изделий найдено в единичных экземплярах. Это – **шаровидная подвеска** из серебра (рис. 5: 37), бронзовый втульчатый **наконечник стрелы** (фиг. 5: 34), **окантовочная скобка** из загнутой медной пластинки (фиг. 5: 35) , бронзовая(?) **пластинка-оковка** с двумя отверстиями для прибивания (фиг. 5: 36) и две узкие бронзовые **крючковидные пластинки** (Джюрджюлешть П, 3/13[10]). В одном из погребений (Ефимовка, 9/18) найден **фрагмент золотой фольги**[11] и в трех погребениях было выявлено по одной невыразительной пластинчатой **бляшке** из меди и бронзы.

Как видим, оригинальные металлические находки довольно редки, а ассортимент остальных настолько стандартизирован, что дает основание говорить о возможности привлечения многих из этих изделий в качестве надежных определителей культурной принадлежности погребальных памятников.

Апробирование десяти спиральных подвесок (табл. 2) и особенно изучение двадцати трех предметов методом спектрального и металлографического анализа (табл. 1) дало возможность исследователям подойти к определенным обобщающим выводам.



Фиг. 5. Металлический инвентарь: 1, 7 – подвески из золота; 2–6, 8–31, 37 – подвески из серебра; 32, 33 – подвески из меди; 34 – наконечник из бронзы; 35 – скоба из меди; 36 – пластинка-оковка из бронзы (1 – Глубокое, 1/7; 2–6 – Белолесье, 7/4; 7 – Плавни, 26/7; 8, 9 – Семеновка, 11/5; 10, 11 – Огородное-80, 1/6; 12, 13 – Бараново, 1/10; 14 – Новоселица, 21/1; 15 – Доброалександровка, 1/5; 16, 17 – Садовое, 1/26; 18, 19 – Садовое, 1/32; 20, 21 – Алкалия, 33/7; 22, 23 – Новоселица, 19/11; 24, 25 – Курчи, 20/16; 26, 27 – Алкалия, 33/9; 28–31 – Тараклия II, 10/19; 32 – Тараклия II, 10/10; 33 – Траповка-74, 1/9; 34 – Капланы, 1/9; 35 – Дивизия II, 6/1; 36 – Тирасполь, 3/19; 37 – Кислица, 8/ 6)



Фиг. 6. Каменные песты и растиральники для измельчения медной руды
(1 – Шевченково, 3/11; 2 – Гаваноаса, 9/2; 3 – Доброалександровка, 1/5)

Собственных источников сырья для металлургического производства рассматриваемый регион не имеет. Вместе с тем, цветная металлообработка у местных племен ямной культуры была весьма развитой, ее продукция и морфологически и химически вполне соответствует стереотипам обширной Циркумпонтийской металлургической провинции, в которую рассматриваемый регион входил исторически[12]. Судя по мышьяковистым бронзам и "чистой" меди, источниками получения металлов были различные горнорудные регионы: Карпаты, Балканы, Кавказ и Южный Урал[13]. При этом предполагается вероятность преобладания здесь балканских металлов[14].

Явно привозной была и определенная часть использованных изделий, в основном же, судя по специфичности находок, металлические предметы изготавливались из привозного сырья на месте. Определенным свидетельством тому служат, в частности, находки каменных орудий для дробления и растирания медной руды (фиг. 6).

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METAL ARTICLES OF THE PIT-GRAVE CULTURE TRIBES FROM THE NORTHWEST PONTIC AREA

LEONID V. SUBBOTIN (ODESSA)

This article collects the data for 322 metal artifacts, found until 2006, in 163 graves (from 2112 explored) of the Pit-grave („yamnaya") culture in 129 mounds (from 556 excavated) on the territory of Odessa region, Ukraine and the adjoining steppe and forrest-steppe zones of the Republic of Moldova.

The information is summarized for all categories of metal articles. 210 of them are made of copper and bronze, 107 of silver, four of gold and one of lead. Amongst the most widespread functional and typological artifacts are: wedges; knifes; daggers; razors; awls; bracelets; elements and beads (used as pendants or for compound bracelets and necklaces); spiral and crescent pendants; rings.

As a whole, the range of metal articles and their manufacturing technology shows that the non-ferrous metal processing in the Pit-grave culture of the Northwest Pontic area was quite highly developed. Imported raw material, brought here from various ore-dressing regions – mostly the Balkans, was used exclusively.

СЪКРАЩЕНИЯ / ABBREVIATIONS

АОР	Археологически открития и разкопки
АрхИ	Археологические изыскания
ГДА–НБУ	Годишник на Департамент Археология. Нов Български университет
ГМР	Геология и минерални ресурси
ГНАМ	Годишник на националния археологически музей
ГНАИМ	Годишник на националния археологически институт с музей
ГСУ–БФ	Годишник на Софийския университет. Биологически факултет
ГСУ–ГГФ	Годишник на Софийския университет. Геолого-географски факултет
ГСУ–ФМФ	Годишник на Софийския университет, Физико-математически факултет
Докл. РАН	Доклады Российской Академии Наук
ЗВМО	Записки Всесоюзного минералогического общества
ЗІФ	Записки історичного факультету Одеського державного університету
ИА АН СССР	Институт археологии Академии наук СССР
ИАИ	Известия на Археологическия институт
ИАН–СГ	Известия Академии наук СССР, Серия геологическая
ИБАИ	Известия на Българския археологически институт
ИБМ	Известия на българските музеи
ИВАД	Известия на Варненското археологическо дружество
ИИ	Интердисциплинарни изследвания
ИИМВТ	Известия на Историческия музей – Велико Търново
ИИМКюстендил	Известия на Историческия музей – Кюстендил
ИНАМ	Издания на Народния археологически музей
ИНМВ	Известия на Народния музей – Варна
ККПБ	Карановски конференции за праисторията на Балканите
КСИА	Краткие сообщения Института археологии Академии наук СССР
МАКБ	Материали за археологическа карта на България

МПК	Музеи и паметници на културата
ПАП	Проблеми археології Подніпров'я
РА	Российская Археология
РП	Разкопки и проучвания
МАУ	Материалы по археологии Украины
СА	Советская археология
САИ	Свод археологических источников
СпБГД	Списание на Българското Геологическо дружество
Труды АН СССР	Труды Академии наук СССР
AA–JKF	Anadolu Arastirmalari – Jahrbuch für kleinasiatische Forschung
AARCA	Academy of Athens. Research Center for Antiquity
Acta Arch. ASH	Acta Archaeologica Academiae Scientiarum Hungaricae
ADPF	L'Association pour le Développement de la Pensée française
AE	Archäologie in Eurasien
AGUC	Acta Geologica Universitatis Comenianae
AI–PI	Arheološki institut. Posebna izdanja
AM–Studien	Asia Minor Studien
ARA	Annual Review of Anthropology
ArB	Archaeologica Bulgarica
AREPS	Annual Review of Earth and Planetary Sciences
AVA–Materialen	Materialen zur Allgemeinen und Vergleichenden Archäologie
AVO	Altertumskunde des Vorderen Orients
AUMG	Annual of University of Mining and Geology
BAR Int. Ser.	British Archaeological Reports. International Series
BAVA	Beiträge zur Allgemeinen und Vergleichenden Archäologie
BD	Belleten Dergisi
BFAP	Biblioteka Fontes Archaeologici Posnanienses
BPS	Baltic-Pontic Studies
BRGK	Berichte der Römisch-Germanischen Kommision
CAH	Communicationes Archaeologicae Hungariae
CCDJ	Cultură şi civilizaţie la Dunareă de Jos
CMin	Canadian Mineralogist
CNRS	Centre National de la Recherche Scientifique
CR ABS	Comptes Rendus de l´Académie Bulgare des Sciences
Dacia NS	Dacia. Nouvelle Série

DGU	Danmarks Geologiske Undersogelse
EA	Eurasia Antiqua
ERAUL	Études et Recherches Archéologiques de l'Université de Liège
GCA	Geochimica et Cosmochimica Acta
GRL	Geophysical Research Letters
GSA Today	Geological Society of America Today
HAW–IIKEVB	Heidelberger Akademie der Wissenschaften. Internationale Interakademische Kommission für die Erforschung der Vorgeschichte des Balkans
IA–SH	Internationale Archäologie. Studia Honoraria
IF	Istanbuler Forschungen
IntA	Internationale Archäologie
IUAMB	Indiana University Art Museum Bulletin
JAS	Journal of Archaeological Science
JCA	Journal of Conflict Archaeology
JEA	Journal of European Archaeology
JGR	Journal of Geophysical Research
JIES	Journal of Indo-European Studies
JMA	Journal of Mediterranean Archaeology
JRGZM	Jahrbuch des Römisch Germanischen Zentralmuseums Mainz
JRSS	Journal of the Royal Statistical Society
JWP	Journal of World Prehistory
MA	Monumenta Archaeologica
MM	Mineralogy Magazine
MSP–SP	Mineralogical Society of Poland, Special Papers
MWA	Monographs in World Archaeology
NAR	Norwegian Archaeological Review
NIMPRS B–BIMA	Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms
NJMM	Neues Jahrbuch für Mineralogie Monatshefte
OJA	Oxford Journal of Archaeology
PACh	Pure and Applied Chemistry
PAS	Prähistorische Archäologie Südosteuropas
PBF	Prähistoriche Bronzefunde
PPS	Proceedings of the Prehistoric Society
PrA	Przeglad Archeologiczny
PrE	Préhistoire Européenne
PrG	Przegląd Geologiczny

PZ	Prähistorische Zeitschrift
RM	Reviews in Mineralogy
RPRP	Reports on Prehistoric Research Projects
SA	Sociological Analysis
SAM	Studien zu den Anfängen der Metallurgie
SASTUMA	Saarbrücker Studien und Materialen zur Altertumskunde
SAUS	Studia Archaeologica Universitatis Serdicensis
SBA	Saarbrücker Beiträge zum Altertumskunde
SCIVA	Studii şi Cercetări de Istorie Veche şi Arheologie
SGM	Slovak Geological Magazine
SlA	Slovenská Archeológia
SS–SD	Studia Danubiana. Series symposia
SStr	Schweizer Strahler
StA	Studia Archaeologica
STMR	Studien im Thrakien-Marmara-Raum
StP	Studia Praehistorica
StT	Studia Troica
ThrP	Thracia Pontica
VA	Vita Antique
VHA	Vegetation History and Archaeobotany
WA	World Archaeology

СПИСЪК НА АВТОРИТЕ / LIST OF AUTHORS

Prof. Dr. Douglass W. Bailey
Archaeology Center
Stanford University
United States of America
E-mail: dwbailey@.stanford.edu

Dr. Yavor Boyadziev
National Institute of Archaeology and Museum
Bulgarian Academy of Sciences
Bulgaria
E-mail: yavordb@abv.bg

Prof. Dr. habil. Elissaveta Bozilova
Department of Botany
Faculty of Biology
University of Sofia
Bulgaria
E-mail: bozhilova@biofac.uni-sofia.bg

Prof. Dr. John Chapman
Department of Archaeology
University of Durham
United Kingdom
E-mail: j.c.chapman@durham.ac.uk

Prof. Dr. habil. Valentin Dergacev
Institutul Patrimoniului Cultural
Academia de Ştiinţe a Moldovei
Moldova
E-mail: dergacev@mail.ru

Dr. Branimira Dimitrova
Institute of Experimental Morphology and Anthropology
Bulgarian Academy of Sciences
Bulgaria
E-mail: iemabas@bas.bg

Prof. Pavel Dolukhanov
School of Historical Studies
Newcastle University
United Kingdom
E-mail: pavel.dolukhanov@ncl.ac.uk

Dr. habil. Mariana Filipova-Marinova
Varna Regional Museum of History
Bulgaria
E-mail: marianafilipova@yahoo.com

Prof. Dr. Ivan Gatsov
Department of Archaeology
New Bulgarian University
Bulgaria
E-mail: igatsov@yahoo.com

Dr. Bisserka Gaydarska
Department of Archaeology
University of Durham
United Kingdom
E-mail: b_gaydarska@yahoo.co.uk

Dr. Tom Higham
Radiocarbon Accelerator Unit
Oxford University
United Kingdom
E-mail: thomas.higham@archaeology-research.ox.ac.uk

Mr. Noah Honch
Radiocarbon Accelerator Unit
Oxford University
United Kingdom
E-mail: noah.honch@lincoln.ox.ac.uk

Mariya Ivanova
Institut für Ur- und Frühgeschichte und Vorderasiatische Archäologie
Ruprecht-Karls-Universität Hedelberg
Deutschland
E-mail: ivanovams@hotmail.com

Assoc. Prof. Dr. Ruslan I. Kostov
University of Mining and Geology "St. Ivan Rilski"
Bulgaria
E-mail: rikostov@yahoo.com

Dr. Clemens Lichter
Badisches Landesmuseum Karlsruhe
Deutschland
E-mail: clichter@gmx.de

CR Dr. Laurence Manolakakis
Centre National de la Recherche Scientifique,
Université de Paris I, Université de Paris X
France
E-mail: laurence.manolakakis@mae.u-paris10.fr

Alexander Minchev
Regional Museum of History – Varna
Bulgaria
E-mail: al_minchev@abv.bg

Petranka Nedelcheva
Department of Archaeology
New Bulgarian University
Bulgaria
E-mail: pepini@gbg.bg

Dr. Vladimir Slavchev
Regional Museum of History – Varna
Bulgaria
E-mail: vladosl@yahoo.com

Dr. Leonid V. Subbotin
Odessa Museum of Archaeology
Ukraine
E-mail: l.v.subbotin@mail.ru

Prof. Dr. Yordan Yordanov
Institute of Experimental Morphology and Anthropology
Bulgarian Academy of Sciences
Bulgaria
E-mail: iemabas@bas.bg